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#### CONGRESS AND THE DEPRESSION IN TRADE.

WHILE all hands are discussing the financial situation, there is no agreement as to the real cause of the prevailing trouble. An extraordinary session of Congress has been called, to legislate against "present and impending danger and distress," but no forecast can be made of its action regarding any of the "unwise laws" which the President deplores in his proclamation. The business system of the country is in the condition of a sick man over whom consulting physicians disagree in their diagnosis. It may be that no organic trouble exists,—that there is more of mental worry than of physical ailment,—and that the administration of bread pills will restore the patient, the real good coming from his being convinced that he will not die from neglect. The government doctors, after sufficiently alarming the country as to its condition, may administer their harmless pellets with such an air as to create an impression of profound medical skill. Then, after the natural recuperative forces have had time to work, the patient will spring into renewed life, confident of greater strength on account of having enjoyed such able treatment.

There is no wish here to decry the seriousness of widespread distrust in business circles, but one may stop to ask what grounds exist for distrust. Lack of money in this country cannot be urged; we have more of it *per capita* to day than ever before, and more *per capita* than Great Britain or Germany; besides, no dollar of this money has yet shown less purchasing value than any other dollar. There have been some failures of weak banks, but generally without loss to depositors and in no case involving loss to holders of a bank's currency notes. Certain corporations have come to grief through speculating in their own securities in Wall street, instead of confining their business to more legitimate channels. But the most notable of these—the Cordage concern—is found to have an excess of assets, with unimpaired facilities for manufacturing a commodity still in large demand at good prices. Its experience is a type of those which have caused investors and speculators to buy stocks less freely, and have made banks temporarily more cautious about collateral, resulting in a decline in stock quotations, though the railroad and manufacturing properties represented are intrinsically as valuable as ever, and the dividends paid are of the usual volume.

By the way, there is too great a tendency to look to the stock exchange for standards of value. When the daily journals begin to give as much prominence to reports of the real business of industrial corporations as to the fluctuations in price of such of their shares as fall into the speculative market, we shall be less disturbed by Wall-street news. It will be easier to distinguish between speculative and legitimate business operations, with the result of greatly strengthening credit, in good and bad seasons alike. Credit is, after all, the life of trade, and we are now in a period of distrust in which business men are too cautious for buying and selling to proceed freely; most of them not knowing why. For this reason, perhaps

the mere appearance of doing something on the part of Congress may relieve the people of their alarm.

It is safe to assert that nothing radical will be done this summer in the way of legislation; there never is in so short a time. It takes months and years, ordinarily, for the representatives of the various sections of the Union, with divergent interests, to so adjust their differences as to amend any existing condition to an important extent. We happen to have in this country two kinds of coinage, of differing intrinsic values, and it has been predicted for years that the result would be just such a period of depression as now exists, involving our credit in the markets of the world. There have been able men, on the other hand, who made light of such warnings, and who would not believe even one who should rise from the dead to proclaim that the present crisis is due to "cheap" silver money. It is idle to expect agreement on this subject, therefore, within the present year.

If this lethargy in trade is to continue until Congress gives us practically new laws, the situation is indeed discouraging. All that remains to be done is for business men and manufacturers to attend to their legitimate affairs more carefully, within narrower limits, perhaps, eschewing speculation, until the storm has blown over, but by no means to sit still and wait upon the President and Congress. Finally, it may be true, in a business panic as in an epidemic of disease, that fear, growing out of dwelling too much upon its progress, may prove fatal in more cases than the disease itself.

#### SOME FIGURES TO BE CORRECTED.

THE extent of the balances of trade against the United States during the last few months is likely to be placed, finally, at a much lower figure than indicated by recent reports from the Treasury department. Recently invoices have been entered at the custom-house in the nominal figures of depreciated paper in which the goods were bought in different countries, and it has not been considered necessary to reduce them to gold values except in cases where *ad valorem* duties are charged. This omission has been the rule since the issuance of a Treasury department circular dated January 23, 1892. While some trouble has been saved by means of this recent practice, complaint is now made that our statistics of foreign commerce have become sadly incorrect. Instead of a balance against us during the last ten months of some \$80,000,000, it is the opinion of some who have investigated the matter that upon a specie valuation the sum would be reduced at least one-half. It has been learned, for instance, that the paper milreis of Brazil has fallen to about 44 per cent. of its par value in gold. This fact will serve to explain the following comparison of quantities and values of the imports of India-rubber for the ten months ending April 30 in each of the two past years, as reported by the Bureau of Statistics:

	Pounds	Values.
India-rubber, 1893 .....	35,912,558	\$25,320,851
India rubber, 1892... ..	34,447,463	15,751,561

There is no reason, based upon the condition of the market for rubber in either Pará or New York, why an increased importation of 1,500,000 pounds should have led to an increased valuation of nearly \$10,000,000. It is expected that the Treasury department will return to the method of requiring all values on importations to be expressed in equivalents of American money, for the reason that, in view of impending financial legislation, it is important that the balance of trade either for or against the United States should be known as accurately as possible. As a part of this policy the figures heretofore published will be rectified in the totals made up at the end of the fiscal year, or June 30.

#### NEW RUBBER-RECLAIMING PLANTS.

M R. C. J. McDERMOTT, well known as one of the most successful recovered-rubber men in the United States, has recently erected a plant for reclaiming both vulcanized and unvulcanized gum for the works of the Canadian Rubber Co. (Montreal). The plant itself is unique in that it is probably one of the most compact and easily run that has ever been erected. Most of the work is done automatically and the goods produced are of the finest possible quality. In this plant the stock is first fed through large crackers from whence it passes on to a belt with elevator buckets which take it to the floor above and run it off through a magnetic machine to remove any iron that may be present. From there it goes to the cleaning machine, an invention of Mr. McDermott's which removes all sand or gravel or foreign material. From this machine it goes into lead-lined tanks where it is treated to a boiling solution of sulphuric acid to destroy the fiber, and from there it is washed down through a large pipe into a great vat where it receives its final washing. The washing finished it is passed automatically into a rotary drying-machine, which receives the wet material at one end and delivers it dry at the other end. From there it is run through grinders and then sent to the devulcanizers which is the last process used in the destruction of the fiber and the reclaiming of the rubber. Above the acid tank and the washers are placed ventilating-pipes which carry the steam out of the building and make it far more pleasant than the ordinary shoddy-mill is for workmen. Mr. McDermott not only recovers compounded gum but has been successful in wholly recovering cured pure gum, a feat that has many times been said to be impossible. With the permission of the manager of the Canadian Rubber Co., Mr. McGill, he has invited prominent rubber-men in the United States to visit the plant and many have responded.

A charter has been granted, under the laws of Massachusetts, to the Danversport Rubber Co., the incorporators being Albert Barlow, William J. Corbett, and James C. Watson. The capital stock is \$10,000. The purpose of the company is stated to be the reclaiming of rubber. "The process consists of preparing old rubber by grinding, etc., and putting it in form suitable to use in manufacturing rubber goods." The plant to be used is that of the Pierce Rubber Co., on Water street, Danversport.

It is believed that a rubber will be brought out soon that will permanently stand a temperature of over 350°. It is claimed that it has already been made in an experimental way. Such a rubber would be very useful for steam-heating purposes, although the matter of the duck is a factor in its adaptation. In steam-valves it would become indispensable.

## CRUDE RUBBER.

### RUBBER IN THE CAQUETÁ REGION OF COLOMBIA.

By Florentino Calderon Reyes (Bogotá).\*

THE territory of Caquetá, in Colombia, is a vast region limited on the west and north by the Andes and the rivers Aquarico and Napo; the Amazon river bounds the territory on the south to the point of meeting the river Caquetá, or Yapurá, following this river against its current westward to its source in the Andes mountains. This immense section of country is irrigated by the rivers mentioned and their tributaries, and also by the river Putumayo and its tributaries, all of which could be navigated for long distances by small steamboats, and thence to the base of the mountains with the aid of canoes. The climate of Caquetá is hot and unhealthy, especially when the weather changes from winter to summer and vice versa. Summer lasts from October to March, and winter includes the rest of the year. The nature of the soil is marshy, owing to the great discharge from overflowing rivers in winter in a level country. Partly from this cause, its fertility is astonishing. Cacao is found in an uncultivated state, and hemp, sugar cane, and other native products of a warm climate grow luxuriantly. In the region irrigated by the river Aquarico, a tributary of the Napo, and by the river San Miguel, there are very rich deposits of gold. Throughout the territory can be found in more or less abundance caucho,†—or rubber,—sarsaparilla, ipecacuanha, superior qualities of woods for construction, and dye-woods. The population of this territory consists of not over 10,000 Indians, nearly all in a savage state. It is believed that with the development of trade it would be easy to bring them under the influence of civilization, particularly with the aid of missionaries, whom our government would protect. The Indians, as a result of such treatment, might be made an important auxiliary in the development of the territory, their labor becoming advantageous in various enterprises for which the country is fitted.

Caucho abounds everywhere in the section watered by the rivers Caquetá, Putumayo, and Napo and their tributaries. The number of trees is greater toward the mouths of these rivers than near the base of the mountains, where the trees are not always found in groups but singly. It is most abundant where the river Caquetá discharges its waters through several arms into the Amazon, near the village of Jefé. The quality of the caucho is that known as black rubber—very similar to the Esmeralda grade—and it can be compared to that of the second quality

\* The writer of this article is the resident member in Bogotá of the New York firm of E. E. Britton & Co., commission merchants and agents of the Banco National de Colombia, and a brother of the Minister of the Treasury at Bogotá. It has been written for the benefit of any who may be interested in exploiting the business of rubber-gathering in a quarter of Colombia, hitherto little known, which forms an almost virgin field.—THE EDITOR.

†Caucho is the Spanish word for rubber, wherever produced, and is not here used as designating the particular grades of rubber known in the New York market as "caucho."—THE EDITOR.

exported from Pará. As for the quality classified as Pará fino, it cannot be found except in the regions watered by the rivers south of the Amazon.

The proper season for the collection of rubber in Caquetá is the summer,—that is, from October to March,—for during the other months the forests are completely under water. It is the custom of rubber-gatherers on the Amazon during the winter to make their quarters along the river banks, cutting wood for steamboats, dye-wood, etc. Those of Caquetá might spend the same time in preparing land for cacao and other products suitable for their own use. The quantity of caucho that each laborer can get depends upon the locality selected, and upon the degree of its exploration beforehand. The lower part of the Caquetá territory is similar, in conditions of climate and vegetation, to the banks of the tributaries of the Amazon flowing from the south, whence comes the rubber exported from Pará. It is not known why the same qualities of rubber are not found in the Caquetá district; I do not assert that they may not yet be discovered, for there has never been a thorough exploration of the lower part of this district adjacent to the Amazon.

To undertake the exploration of the caucho-forests of the Caquetá district, it will be advantageous to take there laborers acquainted with the soil and climate of the Amazon valley, for the Indians of this locality are of no present use in rubber-gathering. It would be necessary to establish storehouses with provisions and tools at the mouth of the rivers Caquetá and Putumayo, and to keep at each of these places in active service a steamboat drawing about  $2\frac{1}{2}$  feet of water and able to transport from forty to fifty tons of freight. These vessels will be found serviceable in looking after the laborers; also in furnishing supplies, and in collecting the caucho at different stations where rubber-gathering is in operation. When the Indians, through commercial and religious influences, have been induced to work for themselves and for others, they undoubtedly will be able to obtain greater quantities of caucho on account of naturally being acquainted with the forests.

In order to establish the rubber industry successfully in Caquetá, it will be necessary to make a beginning at the same time in agriculture, in order to provide for the maintenance of the laborers. At present provisions would have to be brought from Manáos or Pará, entailing heavy costs of transportation, beside damages to goods on account of the distance and the climate. As above stated, steamboats and canoes can be made to serve for transportation on the rivers, while the laborers can carry on their backs all the provisions they need as far into the forests as they may go in search of the gum. On the river Caquetá, 400 miles from its confluence with the Amazon, there is a fall called "Araracuara," above which steam-launches would be in-

dispensable, as they could run up a great distance, reaching Puerto Limon, a small town fifteen miles northwest of Mocca, the capital of the territory.

The information given above is the result of my own experience and study during nine years I spent in the Caquetá territory and the Amazon region. In the case of one intending to establish any enterprise here—as fruit-growing or rubber-gathering—it is my opinion that it would be wise to send an exploring expedition, starting from the town of Mocca, running down the Putumayo river to La Concepcion, thence by the Cencella valley to the river Caquetá, on the banks of which caucho is abundant. After making such an exploration, the chief of the expedition could go downward on the Amazon noting all the points of interest in returning to New York via Pará. This journey was made by M. Jules Creveaux, whom I accompanied on several explorations. The memoirs written by this gentleman in relation to Caquetá and the Amazon would be of great interest to any concerned in the present

subject. The provision for the expedition could be taken at Pasto. In that city it would be easy for me to join an expedition, as I am well known there. The expedition would require the following *personnel*, at the rate of cost mentioned :

	Per month.
Chief, thoroughly acquainted .....	\$200
Four assistants, also acquainted, @ \$100 .....	400
Six sailors, @ \$50 .....	300
Six peons (natives), @ \$50 .....	300
Two cooks, @ \$10 .....	80
Food for 19 persons, @ \$50 .....	950
Extras.....	170
 Total monthly expenses .....	 \$2,400
[Equal to American gold, \$1200.]	

I believe that in order to prove successful the expedition should consume not less than five or six months. Besides the force above mentioned, it would be well to send an educated man to prepare a well-written and illustrated report on the details of the expedition.

Bogotá, April 29, 1893.

## BOSTON'S FIRST CARGO OF PARÁ RUBBER.

By Frank B. Rickaby.

THE schooner *Anna R. Bishop*, which arrived in Boston on June 19, carried the first cargo of India-rubber ever shipped direct from Pará to that port. It was also the largest cargo of rubber from any source ever received at Boston. The rubber was consigned to the Boston Rubber Shoe Co. and Joseph Banigan (Providence), the larger share going to the former firm. The cargo was entered at the custom house on June 21 by the Boston Rubber Shoe Co.'s brokers, W. M. Proctor & Co., and the schooner came up to Winslow's wharf on Causeway street to discharge, this wharf being not 300 feet away from the great warehouse of the Rubber Shoe company.

The cargo consisted of 449,783 pounds for the Rubber Shoe company and 198,132 pounds for Mr. Banigan, making a total of 644,915 pounds. The value of the cargo was about \$400,000. The price of this rubber was quoted by the daily newspapers at from 93 cents to \$1.25 per pound. They failed to state, however, that this was the value as expressed in the depreciated paper money of Brazil, which is now worth in gold about 45 per cent. of its par value.

The idea has gotten out that this rubber was shipped in bulk—that is, not cased—as was a former cargo shipped by the same vessel to Mr. Banigan at Providence in February, but this is a mistake. The former shipment of rubber in bulk was in the nature of an experiment, the idea being principally to save the cost of the cases, which, in a cargo of hundreds of tons of rubber, amounts to a considerable sum of money. It was expected, also, that there might be a saving of freight charges. The result showed an extra labor cost in handling the uncased rubber, and the experiment in shipments of this kind has not been repeated.

The shippers of this large cargo of rubber were the enterprising firm of La Rocque da Costa & Co. at Pará. This firm act as the purchasing agents at Pará for the Boston Rubber Shoe Co. and the Woonsocket Rubber Co.,

the two largest rubber-manufacturers in the world. The firm are also the largest shippers of rubber from the port of Pará. In 1892 they shipped 3703 tons of rubber, of which 2716 tons were purchased for and shipped to the above-named manufacturers. The custom of manufacturers buying rubber direct in the producing countries was practically inaugurated by Mr. Banigan, and has since been adopted by the Boston Rubber Shoe Co. Such a course would not be practicable for manufacturers not having an enormous capacity for consumption. For such houses as are named above there are doubtless many advantages in direct purchasing. There is a saving, for instance, of the profits of New York importers. Again, it would be impossible for any concern to enter the New York market as a purchaser of 200 tons of rubber without exciting the market and raising the price, not only on its own purchases, but in all the markets of the world. But the lot received by the *Bishop* was bought in Pará without affecting the price to any appreciable extent,—indeed causing scarcely a ripple of excitement at the place. Undoubtedly at the time this purchase was made the buyers were aided in securing the rubber on favorable terms by the financial situation in Brazil, and the prevailing dull state of trade there, many of the receivers being willing and anxious to realize on their holdings. THE INDIA RUBBER WORLD is informed that the actual cost of the rubber above described was a little over 60 cents per pound.

The *Anna R. Bishop* is a three-masted schooner of 426 tons burden. She was built at Wilmington, Del., in 1880, is rated by Lloyd's A1, and is owned by Jacob C. Ridgeway, of Philadelphia. Her lines are very fine forward, and she has more the appearance of a yacht than that of a schooner engaged in the carrying trade. She has always been engaged in the trade between the United States and South America, and has brought several notable cargoes

of rubber. On the last trip the *Bishop* cleared from Pará on May 23, but on account of the tides was delayed in getting out of the Amazon. The voyage was uneventful until the New England coast was reached, when she ran into a bank of dense fogs, and was forced to lay off for several days, making her time out twenty-seven days. Her usual time between Pará and New York is sixteen or

seventeen days, and she has made one trip in thirteen days. Her captain, John C. Rulon, is a native of New Jersey, and comes of a seagoing family, his father and brother both being engaged in the South American trade.

The *Bishop* also brought to Boston a number of boa-constrictors, anacondas, parrots, and monkeys, which all found a market.

### KONGO AND MADAGASCAR RUBBERS.

ENGLISH manufacturers of mechanical rubber goods are favorably impressed with the Kongo-thimble rubber, though English manufacturers of rubber footwear shun it to a considerable extent, following what is claimed to be the experience of American manufacturers in the same line. According to an article in the *Gummi-Zeitung* (Dresden) the chief cause of dissatisfaction seems to lie in the fact that the Kongo thimble softens so much in the manipulations of shoe-manufacture as to render its handling difficult. The American term "thimble rubber" is misleading, as it is the same product called Kongo ball (Kongo-kugel-gummi) in German trade-lists, which appears in the form of small cubes into which the natives cut the product before they sell it. Why they do this is quite a mystery. Although it may be assumed to be done in promotion of quicker drying, many believe it to be done purely to kill time or for amusement on the part of the natives, who call the thimbles or balls "ambrize nuts."

The dissatisfaction above alluded to on the part of American shoe-manufacturers with the Kongo thimbles is by no means a general one, continues our Dresden contemporary. Some of them have had quite satisfactory results, although the experience of others has been very far from satisfactory. After they had refined Kongo thimbles, freeing them of bark and sand, the product appeared of quite good quality and the goods made with them, after being vulcanized, had a very promising appearance. But the trouble came later on—in some cases after twelve months or even two years—when it was realized that the vulcanization had not been thorough, the goods becoming coated with the well known sulphur flush [bloom] on account of which, although these goods had lost none of their durability, they became unsalable.

It is probable that shoe-manufacturers who successfully use Kongo thimbles have found means, as undoubtedly they can be found, for obviating the delayed sulphur flush, but as a rule manufacturers are slow in going into experimenting, especially when the results of the experiment make their appearance at the end of a couple of years. In dealing with Kongo thimbles, a few points are offered to manufacturers, which, when properly observed, may be of advantage to them. Kongo thimbles when stored lose from 5 to 12 per cent. of their weight. Hence importers have to quote lots which have been in store for a considerable time higher than recent importations. Yet it is of advantage to buy lots which have been stored longer, notwithstanding the higher price, because apparently the Kongo thimbles are improved by age.

Kongo thimbles require a special preliminary treatment, according to an experienced rubber-manufacturer in Germany, which consists in soaking for thirty-six hours in a bath made in the following proportions: water, 20 pounds; creosote, 1 pound; *aqua ammonia*,  $\frac{1}{2}$  ounce. Previous to soaking, the thimbles should be well freed of adhering sand and bark. The same bath may be used five or six times, and the recipe is suited to all other African rubbers as well as to Kongo thimbles. After the soaking the thimbles must be washed and well dried. It is claimed that the soaking improves the quality of African rubber perceptibly, doing away with the objections otherwise properly laid to it.

\* \* \*

SOME facts relating to the rubber trade of Madagascar appear in a recent official report by M. d'Anthouard to the French government, which now exercises a protectorate over that island. It is stated that the rubber-tree occurs throughout all the forests of Madagascar. The continual decline in extent of the export of the product of these forests from those parts of the island with which communication is most direct, is due to the wasteful method of the native rubber-gatherers. On the eastern coast of the island, which is the most accessible, and the most densely populated, the price has advanced in recent years at a rate corresponding with the rate of decrease of the product. On the more thinly populated and less accessible western coast, there is no diminution in yield, and rubber may yet be had at low figures. The improvidence of the natives consists in their sawing down the rubber-producing liane-trees, leaving only the stumps. While in this way they secure the entire supply of rubber milk of which the tree is at the time capable—obtaining a large product with slight effort—the source of the supply for all time to come is destroyed.

The preparation of rubber for the market varies under different conditions. Where Europeans are in authority, sulphuric acid is used. The natives shun this method, however, partly on account of the expense of procuring the acid, and partly on account of the mishaps which some of them have experienced in manipulating it. The natives use warm water and the acidulous juice of citrons or tamarinds, or even sea salt. Rubber is one of the most important products of the island, and especially for the purposes of export, and it seems to the author of this report to be the peremptory duty of the government to save the rubber product from the destruction with which the native improvidence threatens it. It is suggested that

there should be laws providing heavy penalties for cutting down liane-trees, and for obtaining rubber milk by other methods than the tapping of trees in the proper season. The method of preparing the product for market, it is suggested, should also be regulated by law. Still another cause of the diminution of the rubber-export trade is due to the burning down of forests through the reckless

kindling of fires, which, it is suggested, should also be a subject of penalty.

The regulation of the methods of rubber-curing, it is thought, would result in improving the grade of product. With a rational, uniform method of obtaining the milk and coagulating it, there is no reason to doubt that the Madagascar grades can be made to compete with Pará rubber.

### EXPERIENCES IN A NICARAGUAN RUBBER-FOREST.

**H**ARPER'S *Weekly* contains an article on Eastern Nicaragua—the rich garden of the isthmus, the dense jungle, and pathless swamp—from the pen of William Nephew King, Jr., some time of the United States navy, in which numerous references are made to the native rubber-trees. He crossed the "divide"—that highest point of elevation, where meet the watersheds of eastern Nicaragua, and where lie nine-tenths of the work of the great interoceanic canal. A trip up the San Juan was made in a canoe, paddled by seven Caribs. "When the Carib is not drunk he is a marvelous worker, and can paddle against a strong current from daylight until dark, never stopping even for food. While hunting the rubber he first gorges himself, and then goes into the woods, where he subsists for several days on the juice of the water-vine alone."

The trip across the "divide" proper was one which the Caribs were not willing to undertake, on account of their lack of acquaintance with the way. Mr. King proceeds: "They referred me to two Spanish rubber-hunters, who were said to know every inch of territory from Greytown to the lake. When I reached their hut I found one of these much-desired individuals snoring in his hammock, with every indication of having passed the greater part of the morning there, while the other was off somewhere in the woods endeavoring to replenish the larder. These men were evidently in desperate circumstances, and the fellow I met did not look unlike the starving apothecary that bartered poison to the unhappy Romeo. As soon as he learned that I was well supplied with provisions, and expected to pay well for his trouble, he seemed indeed, anxious to pilot me, declaring that he had crossed three times during the past year, and had hunted rubber all over the valley of the Deseado. . . ."

"The exertion of climbing these steep hills made us very thirsty, and so the guide began to look for the *bejuco de agua*, or water-vine. In all of these forests thoughtful Nature seems to have placed every requisite to sustain the life of man, and wherever his needs are most urgent, there has she planted that which will satisfy him. The water-vine is found all over the isthmus, but most abundantly upon very high ground, where there is little or no chance of finding any drinking water. Soon we came upon a vine that resembled an old worn Manila-rope. This the guide seized in his left hand, and with a smart stroke of the machete severed it two feet below. Another cut a little above, and a stream of clear delicious water flowed from the lower end. I drank more than a pint, and found

it cool and refreshing. If the operation be reversed—that is, if the stroke is made first above and then below—no water will flow. In the latter case all of the juice immediately runs down the stem into the ground before the lower cut can be made—a phenomenon that some scientist might explain.

"All day we crossed and recrossed fresh deer, tapir, and wild hog tracks, while ever and anon on the topmost branches of the tallest trees the yellow combs of wild turkeys glistened in the sunlight, and coveys of wild pigeons flew into our very faces.

"Now we approached a forest of rubber-trees, which may be detected without the eye of an expert, for they are scarred and dying from the wounds of the *machete*. The rubber-hunter reminds me of the woman who 'killed the goose that laid the golden egg.' Each tree will yield only a certain amount of the precious juice per year and retain its vitality. When one of these improvident fellows makes a discovery, however, only a few months suffice to place his bonanza in the ranks of the many that have gone before. In consequence you may traverse these forests from end to end without seeing a virgin tree. The ordinary specimen of Nicaragua is from fifty to one hundred feet high and about two feet in diameter. The bark is white, and the leaves oval, with a slight inclination downwards. The cuts are made about two feet apart, and generally extend from the ground to the first branch, channels being scored in the sides to lead the juice into a bag. The average yield of a tree is from five to seven gallons of a milky fluid. This is mixed with the juice of the 'wisth,' which hastens congelation. After this operation the crude rubber is baled up and shipped north to be further prepared for commerce. Another tree very similar to the rubber, and often mistaken for it, is the cow-tree. This yields a liquid very much like milk in taste and appearance, and more than once was drunk in coffee by the engineers."

MANUFACTURERS of nearly every class use more or less rubber nowadays. For instance, a visit to the E. W. Bliss Co., of Brooklyn, N. Y., manufacturers of presses and dies for stamping metals, developed the fact that composition springs were used in the presses and dies to the extent of two or three tons per year. These springs relieve the excessive jar that would occur in the force used in the die, and are admirable for the purpose. Of course in such a concern as the E. W. Bliss Co. the amount of rubber used seems very inconsiderable, but "many littles make a mickle," and the number of manufactures in the country is now marvelous, and the majority use rubber.

## RUBBER AT THREE FAIRS.

### SOME FEATURES OF THE WORLD'S COLUMBIAN EXPOSITION.

*Special Correspondence of the "India Rubber World."*

**I**N the southwestern corner of the gallery of the Electricity building the India Rubber Comb Co. and the Goodyear Hard Rubber Co. have a neat, compact exhibit of high-grade rubber goods. From the company's title one might expect to see a display of combs and of other rubber goods best known under the title of druggists' sundries, but all of that line are shown in the Manufactures building. Herein are samples of material and completed articles of interest to the electrical fraternity, as, for instance, hard-rubber sheets from two inches in thickness to one-eighth of an inch, polished so highly as to reflect the motions of passing visitors; hard-rubber tubes increasing in diameter to two inches, and polished cylinders or magnet covers six inches in diameter; rubber rod, insulating hooks, telephone transmitters, rubber battery-cells with single and multiple compartments, battery plate dividers, and, in fact, nearly every standard article attractively arranged in the handsome showcase. As some of the samples are of special form, it is natural to assume that this company have a factory equipped to take care of any orders for the manufacture of specialties in hard-rubber. Over in the east gallery the India Rubber Comb Co. are interested in an exhibit of attraction to users of insulated wire, which was one of the first exhibits completed. This display is that of the Chicago Electric Wire Co., of Wilmington, a view of which is shown herewith, and the neatly-arranged coils of wire, from the smallest to the largest diameters, clearly demonstrate the handsome finish, the toughness, and the high insulating qualities of this well-known insulation.

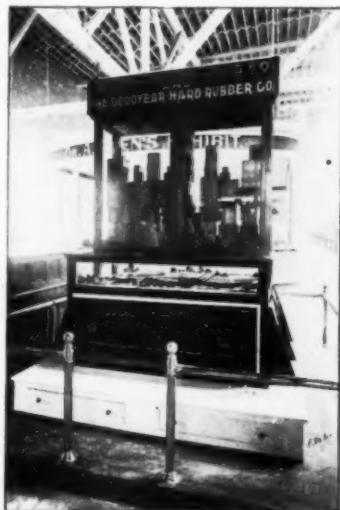


EXHIBIT OF INSULATING MATERIAL.  
[By the courtesy of "Electrical Engineering," Chicago.]

delivering 4500 gallons of water per hour at a height of 60 feet, and every part of the piping can stand a pressure of 70 pounds per square inch. The pipes consist of 600 feet  $2\frac{1}{2}$  inches, 600 feet 2 inches, and 3 inches in pieces of 10 feet. Every piece of pipe is threaded at both ends, and the connecting pieces, numbering several hundred, are all manufactured of the same material. Even the piston-rod of the pump, which must naturally be very strong and had therefore to be made of steel, is covered with hard-rubber, and certain parts of the pump even contain spiral springs made out of rubber. The pumps were ordered by the United States Fish Commissioners, and their use is to feed the aquarium from an immense reservoir.

\* \* \*

A MOST practical exhibit and one that practical men will value is that of the Boston Belting Co., in the Manufactures building. Of all the goods shown in their finely-grouped exhibit there are none but are kept in stock at all times. The central point of interest in their collection is a large pyramid made of mechanical goods entirely. The lower course is built of rolls of packing, and matting in various colors, with a huge belt tightly rolled projecting from each corner. Above this course are coils of hose, neatly tied, in a variety of colors, and of every conceivable kind. Garnishing the whole at intervals could be seen coils of engine-packing, gaskets, boxes of stopples, and innumerable pieces of odd mold-work. Surmounting the pyramid is a golden eagle, resting on rolls of belting, which has been adopted by this company as its trade mark. On the wall by the side of the pyramid is to be seen a handsome glass case in which is a deckle strap hanging on the wheels over which it runs when in use. It is a very effective bit of work and attracts the attention of paper-manufacturers as soon as they get anywhere near the exhibit. On the floor, grouped about the central figure, are molded and punched mats of numerous patterns, car-heating and air-brake hose, handsome lengths of suction-hose with nickel connections, rubber-covered rolls, valves of all

the

THE last number of THE INDIA RUBBER WORLD contained a mention of the pumps and connecting-pipes used in the Fisheries building to pump salt water into the aquariums. This work was furnished by the Goodyear Hard Rubber Co., from their plant at College Point, and is illustrated in an engraving in connection with this article. It consists of two pumps, all parts of the machinery being made of hard-rubber. Each of the pumps is capable of

kinds, springs, etc. A brass rail keeps the public from disarranging goods, but a gate at one end admits them to the presence of Mr. W. C. Koehne, who is very glad to answer questions concerning the goods shown.

\* \* \*

ONE of the most artistically arranged displays yet completed in the Electricity building is that of W. R. Brixey, manufacturer of Day's Kerite wires and cables. The exhibit occupies section T, space 2, on the second floor, and stands directly at the head of the stairs, opposite the office of the chief of the department. An accompanying illustration from a photograph gives an excellent idea of the general appearance of the space. The pavilion is painted white with gold trimmings and is finished within in polished sycamore, and with its handsome furniture, "lockers," etc., looks much like the captain's cabin on an ocean liner.

The exhibit proper has been very carefully selected with a view to showing all the steps in the manufacture and application of this insulation, from the tree to the armored submarine cable. In order to give nature proper credit for her share in the work, the first stage in the evolution of Kerite from sap is shown by four complete rubber "plants" in actual operation, so to speak, whose polished dark-green leaves look delightfully cool and shady among the varicolored reels of wire and set off by the pure white of the pavilion. Near by are piles of Pará rubber just as received from South America, purified rubber after being stripped and washed

ready to be ground, crude Kerite compound which is used with the rubber to give it life, and finally rubber and crude Kerite mixed, forming the Kerite proper ready to be molded upon the wire. The successive steps in wire and cable manufacture are then shown. Here are wires covered with "plain insulation," *i. e.*, bare Kerite simply vulcanized. Other samples show a braid over this, and still others show the braid painted with a waterproof or a fireproof compound, as the uses to which the wire is to be put may require, and polished. The color of these paints is made to match or harmonize with the woodwork or hangings of the rooms where the wires are run. At three of the four corners, just behind the handsome brass railing completely enclosing the space, stand immense reels of armored submarine cable. This is shown with from one to ten conductors for telegraphic use, and with 50 conductors for telephone service. At the fourth corner is a reel of 154-conductor underground telegraph cable, on top of which

rests a smaller reel of eight-conductor aerial cable, 300 miles of which was recently put up for the new block-signal system of the New York Central and Hudson River railroad between Albany and Buffalo. Interspersed about the space are other reels of underground cable having from four to 91 conductors, while in the five glass cases extending around the front and sides are small sectional samples of aerial submarine and underground cable, also stranded wire for electric light and power circuits, and twisted pair telephone wires for metallic circuit. In the cases are also shown the justly celebrated Kerite cloth tape, the Kerite elastic tape, and the Kerite rubber tape.

Five graceful columns made of reels of gradually decreasing sizes upon which are wound wires of brilliant colors tower conspicuously above the other exhibits and aid in attracting the eye to the more strictly practical part of the display, while the excellence of Kerite is vouched for by two diplomas of honor hanging framed on the outer

wall of the pavilion. One of these was awarded at Philadelphia in 1876, and the other at Paris in 1878. The medals given with them are displayed in one of the cases. The walls are still further embellished with pictures of the tug-boat *Western Union*, laying an 18 conductor Kerite cable across the Hudson at New York and by portraits of Mr. Austin G. Day, the inventor of the insulation. Mr. Avery P. Eckert, who is in charge of the exhibit for Mr. Brixey, has made his little "cabin" a charming resting place for the weary, and started an electrical register of visitors.

\* \* \*



EXHIBIT OF DAY'S KERITE WIRES.

[By courtesy of "Electrical Industries," Chicago.]

A MODEL summer house, such as would adorn any gentleman's lawn were it not built almost entirely of rubber, is what the New York Belting and Packing Co. have erected to show their goods in. The corner posts are 10-inch hose, presumably with a wooden support inside of them. The door and window arches are of 8 in. hose draped with fine Pará rubber so finely sheeted that it looks like a strange foreign lace, and provokes constant inquiry from passers-by as to what it is. Set into the walls of the house are cases containing a variety of rubber goods while the interior is filled with the heavier goods arranged so as best to attract attention. Of the inside exhibit perhaps the most notable part is the pyramid of rolls of belting in sizes 60, 36, 24, 18, 14, and 10 inches wide. On the circular steps that this form of display leaves are grouped samples of all kinds of hose, water-bottles, horse-bottles, bicycle-treads, crude rubber, and a host of minor articles that form a part of the mechanical-goods trade. In the rear of the

structure are rolls of packing of all kinds and colors, hose of all sizes and varieties, rolls for paper, tobacco, and laundry use, pyramids of emery wheels, glass cases of stopples, hard-rubber valve-balls from the size of a marble to that of a cannon ball, step-treads, mats, "leatherite hose," etc. One of the curious parts of the exhibit is the case of queer things in rubber that come from South America. Among them is an armadillo made of crude rubber by an Indian, a dog made of the same material by an aboriginal artist, and numbers of pairs of old-fashioned pure-gum shoes. The exhibit is in the case of Mr. C. H. Broadway, who takes delight in answering the questions of the curious, and who in the course of a day contrives to give a deal of useful information.

\* \* \*

THE most remarkable of the foreign exhibits in India-

ples show every evidence of being first-class, and the case containing clothing displays mackintoshes that are all that could be desired in style and finish. The floor of the pavilion is covered with a link pattern rubber carpet that is very handsome and worth imitating. The mechanical goods made by this company are displayed in a space apart from the rest yet near enough to be known as belonging to the same concern. A monument in shape like a truncated cone capped with the Russian eagles in gilt has been erected wholly of rolls of belting. These rolls standing on edge begin with a huge elevator belt five feet wide and end with a small roll of ordinary belting. Around the outer edge of each roll and resting upon it is stretched a length of suction-hose. Posts made of rolls of packing in red, black, gray, and white, capped with big hard-rubber balls, joined by strips of rubber, form a curious fence to keep the inquisitive from handling the monument itself. The exhibit is to be found in the Shoe and Leather Trades building.

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#### MR. CUTLER ON THE WORLD'S FAIR.

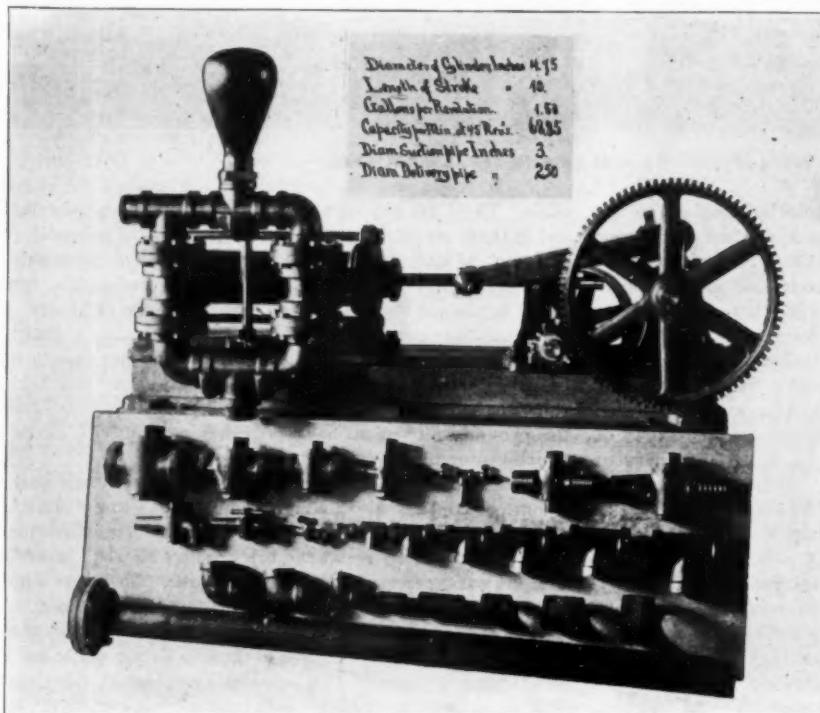
BOSTON, July 5.—Mr. E. H. Cutler, the popular and energetic selling agent of the Woonsocket Rubber Co., when asked what he thought of the World's Fair, and the rubber exhibit in particular, said:

"Well, that's a hard question to answer by a man who has spent but about ten days there. At the present time, however, I must say that the rubber exhibit is in an exceedingly crude state; nevertheless, there is no one but who thinks that it is going to be an exceedingly creditable exhibit. One thing, however, that works to its disadvantage is its location.

"The rubber exhibit occupies a position in the Shoe and Leather Trades building, which is situated on the farther end of a peninsula—a most charming location from a scenic standpoint but almost too remote to attract attention, especially from

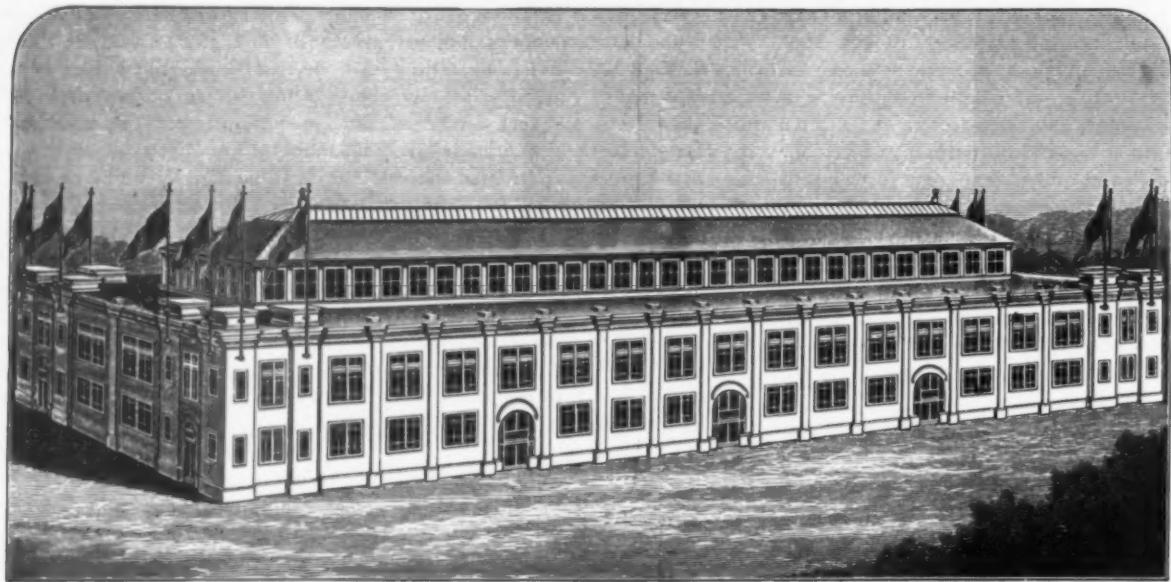
those who are not especially interested in the rubber exhibit. Directly this side of the building is the Spanish convent which of course interests only a few. Then come the Krupp guns. Of course this is a great attraction and nearly every one who visits the Fair desires to see them.

"The Shoe and Leather building cost in all \$100,000. That was the amount originally raised. Of this amount the Woonsocket Rubber Co. contributed \$5000. Then an additional \$2500 has been raised as an entertaining fund. At present the management of the building is hardly in a condition to entertain its guests as it would like to do, but later on all the necessities of life and perhaps some of the luxuries will be furnished those who visit the Shoe and Leather building. Probably during this month a restaurant managed by an experienced caterer will be in full operation in the building. I should judge, from what I saw while there, that the rubber exhibit will be complete



HARD RUBBER ENGINE AT THE WORLD'S FAIR.  
[Photographed for THE INDIA RUBBER WORLD.]

rubber is that of the Russian-American Rubber Co., whose factories are located in St. Petersburg. A magnificent series of show-cases set in the sides of an elaborate pavilion display all of the many varieties of smaller goods that they manufacture. A passageway leading through the middle of the pavilion gives one a chance to visit the Russian factory by means of a series of fine photographs of the interiors and exteriors of the plant. The show-cases contain a variety of shapes and styles of footwear, the fur-lined rubber being especially prominent. In general small goods are to be seen, pneumatic and cushion tires, tubing, mold-work of all kinds, toys, druggists' sundries, and air-goods. Much of the soft-rubber mold work is done in red and is very handsomely finished. In hard rubber the sam-



THE SHOE AND LEATHER TRADES BUILDING, AT THE WORLD'S FAIR.

in a month at least. The machinery in the building will all be running by the 15th of the month. By machinery I mean more than one might think at first thought, for it may not be generally known that in the building is a model and modern shoe-factory. This is located in the galleries and here can be seen all the modern inventions which have done so much to bring to perfection the art of boot- and shoe-making.

"There is but one foreign rubber concern making an exhibit in the building. That is the Russian-American Co., of St. Petersburg. They have an exhibit covering a floor area of about 10,000 square feet, containing an elaborate display of samples of the products of the factory. This includes exhibits of rubber clothing, belting, hose, and footwear. Of the clothing, hose, and belting, I cannot speak too highly, but when it comes to their boots and shoes, that's another thing. They cannot hold a candle to those manufactured in this country. In the first place, they are exceedingly clumsy, and then they are not up to date as regards pattern and style. I was very much interested in an exhibit of what they term 'carriage rubbers.' They are the lightest rubber made abroad, and yet they are heavy in comparison with those we make on this side of the water for ladies' wear. In Russia these are worn by the ladies whenever they are upon the street, whether riding or walking. When a house or even a store is entered, they are slipped off. The Russian exhibit occupies a very desirable position in the center of the rubber exhibit.

"There are four American rubber companies making exhibits in the building. They are the Woonsocket Rubber Co., the Boston Rubber Shoe Co., the American Rubber Co., and the Goodyear's Metallic Rubber Shoe Co. [Wales-Goodyear.] These occupy a total floor area of about 30,000 square feet. The Woonsocket company has the largest and most complete exhibit. We at first had a floor area allotted us of 12,000 square feet, but finding that we required more, our request for 3000 feet more was granted. We are located near the center of the building on the left, as one enters. Our exhibit is contained in a very neat little building, built in cottage fashion something after the Queen Anne style. It is of the same material as are all of the buildings—staff—and is a very handsome

affair. There are windows on the front reaching to the floor, and in these are show-cases containing samples of our products. Then on the interior are more cases, and in them more exhibits. The floor is of tile wood and this is covered with a number of handsome rugs and mats. Scattered here and there are numerous easy chairs and sofas, and so comfortable a place is it that there is hardly a minute even now but that there are to be seen a half dozen or more lounging about the place taking things easy and perhaps resting after a fatiguing jaunt about the grounds. Then we have provided a number of desks at which visitors may write their letters.

"A special feature of our exhibit, attracting a great deal of attention, consists of models of our mills,—the 'Alice,' at Woonsocket, and the mill at Millville, Mass. These are made of wood, painted to represent brick, and with their windows, etc., are exact representations of the mills. So far as rubber footwear is concerned, our exhibit could not be surpassed. We also have several curiosities on exhibition which are attracting a good deal of attention. One of these is a shoe made by the old Hayward Rubber Co., which was exhibited at the Crystal Palace, in London, in 1851. It is truly a great curiosity. It is a fancy shoe,—as fancy shoes went in those days,—and resembles our tennis-shoe, the upper being of purple velvet. Another exhibit bears the self-explanatory inscription 'Sent by Ward & Son, of Nottingham, England. The first pair of shoes introduced and sold in this town. Sold over forty years ago by the late Mr. Ward. They were then worth about \$2.' We also have an exceedingly interesting feature in the shape of an elaborate display of the spears and arrows used by the natives of Brazil, as well as the paddles, jugs, etc., which they use in gathering and curing the rubber milk. These are tastefully arranged about the interior walls of our little house.

"You may say that the success of our exhibit is due mainly to the untiring efforts of the manager of our Chicago store, Mr. C. B. Allen. Mr. Herbert Carey, of Buffalo, however, is in charge during the exposition, and I am sure he will be pleased to meet any reader of *THE INDIA RUBBER WORLD*. Mr. Clinton Collier is general manager of the building, and he is a most agreeable man, indeed."

## RUBBER EXHIBITS HASTILY SEEN.

WHEN square miles of surface are to be whitewashed some contrivance other than the hand-brush is a necessity. This has been found, and is in use at the White City. It is nothing less than an immense atomizer run by power, the whitewash being conducted through lines of rubber hose and sprayed upon the walls.

THE handsome rubber mats at the entrance of *Puck's* building at the Fair were manufactured by the Boston Woven Hose and Rubber Co.

E. BRUCE PRESTON, of Chicago, seems to have furnished most of the fire-hose for use in the interiors of the Fair buildings.

SAMUEL EASTMAN & CO. (East Concord, N. H.) have a handsome glass case near the exhibit of the Boston Belting Co., showing a new rubber-handled nozzle-holder for firemen's use. One point of excellence in the new holder is that it acts as an insulation, thus protecting the firemen from possible electrical shocks.

THE hose used in the exhibit of the New York Brake Co. is carefully examined by railroad men and as a rule they seem to think it one of the best features of the company's exhibit.

THE Mason Air Brake and Signal Co. (Chicago) showed hundreds of feet of coupled air-brake hose in their exhibit, and it gave every appearance of being a first-class article.

To see handsome carriage-mats of rubber one should examine the fine carriages on exhibition in the Transportation building.

IN the handsome exhibit of the Smith & Wesson Co., of Springfield, Mass., are to be seen some of the finest revolvers with hard-rubber handles yet shown at any industrial exhibition.

SAMUEL CABOT, the Boston lampblack manufacturer, has done some of the best work on the grounds in supplying stains for buildings. He has also a fine exhibit showing various colors of his creosote shingle stains.

THE United States National Museum, of Washington, contributes to the Fisheries exhibit oil clothing conspicuously marked "Tower's Fish Brand" and several pairs of hip-boots and wading trousers of rubber; also one pair of rubber mittens.

WIRE-WOUND hose, as well as machine-wound, is to be seen in great profusion about the exhibits of the rock drill men in the department of Mines.

CHICLE sells well at the Fair when it is called Adams's *Tutti Frutti*, and dealt out from the cute little booths that are erected for that purpose.

THE Westinghouse Air Brake Co. have an impressive exhibit made up of iron pipes painted black and gray air-hose coupled and looped.

CANOEISTS and boatmen are much interested in the Osgood portable folding canvas boat, shown in the Fisheries building. The canvas is water-proofed, so that a leak is impossible, and the whole affair when ready for use weighs only twenty-four pounds.

IN the Transportation building Crane & Co., of Chicago, show an arch of iron pipes from the ends of which depend lengths of air-brake hose. The hose is painted a light slate color, which is very neat, but when the paint cracks, as it must, it will give the hose a bad name.

THE New Wonder spray-pump makes an interesting exhibit due prominence being given to the quality of hose used and the style of nozzle adapted for the best results. It is made by the P. G. Lewis Manufacturing Co., Catskill, N. Y.

THE Boyden Brake Co. (Baltimore, Md.) show in connection with their exhibit a lot of red air-brake hose, which attracts considerable attention from those interested in rubber goods.

A HANDSOME lawn near the Horticulture building is used to display lawn appliances, among which are traveling lawn-sprinklers and various types of spraying devices.

THE all-iron hose reel manufactured by the Wirt & Knox Manufacturing Co. (Independence, Mo.) is shown in the Horticulture building. A pyramid formed of various sizes of reels occupies the background of the exhibit, while in front is a medium-sized reel with the hose already wound on it.

THE exhibit of the Wales-Goodyear Rubber Shoe Co. is in charge of Mr. Walter Clapp, well known to the trade for some years as clerk of the American House, in Boston.

THE display made by the American Rubber Co. consists of two exhibits. The clothing exhibit is in charge of Mr. James Shasgreen and the shoes in charge of Mr. W. T. Rawlins.

## THE GREAT DISPLAY OF TIRES.

THE Pope Manufacturing Co. (Boston) have a most magnificent exhibit. A feature that interests all is the variety of tires, on the great number of machines displayed. These are by far the handsomest tires shown. They are fully inflated, are free from spots or bloom, and are made up in red, white, blue, yellow, green, and black.

THE Hickory Wheel Co. (Newton, Mass.) show the first crude machine made. It is needless to say that it was not rubber-shod. All the rest of their machines, however, have the best of pneumatic tires.

THE pedal treads on the Monarch cycles (Chicago) are handsomely molded of white rubber, with the name in large letters in relief. These machines all have pneumatic tires.

THE Gormully & Jeffery Manufacturing Co. (Chicago) show two types of tires on a great variety of machines. One is the ordinary plain pneumatic, and the other a pneumatic with grooves running around the outer circumference.

THE pneumatic sulky—tires and all—with which Nancy Hanks broke the world's trotting record, was exhibited by the Hickory Wheel Co. (Newton, Mass.)

THE Morgan & Wright tire was well shown on the machines of the Royal Cycle Works (Marshall, Mich.). The exhibit was one that was constantly viewed by wheelmen and sight-seers.

A PNEUMATIC wheel convertible for either one or two riders was what the American Cycle Works (Chicago) showed, and their exhibit caught the public eye most effectively.

THE pneumatic tires shown on the Whitworth cycles (Birmingham, England) were a decided disappointment, as they looked far from strong or well-finished.

BICYCLES with pneumatic tires, cushion tires, children's cushion-tire cycles, and invalid chairs with solid tires made up a part of the exhibit of the Western Wheel Works (Chicago).

BOTH cushion and pneumatic tires in gray rubber were shown on the machines of the Central Cycle Co. (Indianapolis, Ind.)

THE H. B. Smith Co. (Smithville, N. J.) show some well-finished bicycles with black pneumatic tires.

THE Freeport Cycle Co. (Freeport, Ill.) show four handsome pneumatic-tired machines.

A LIFE-SIZE figure with skeleton lines showing motions in riding is a feature of the Gendron Wheel Co. (Toledo) exhibit. All of their machines show the pneumatics.

THERE are 6400 rubber tires in use on the roller chairs on the Fair grounds and all are enthusiastic in their praise.

THE Derby Cycle Co. show wheels mounted so that they are in constant revolution, showing neatly-fitted pneumatics.

THE Stokes Manufacturing Co., showing the Stirling pneumatic-tired bicycle, have a neat exhibit, well displayed, and very effective.

WILLIAM READ & SONS (Boston) show the pneumatic tire as applied to various styles of men's and women's machines.

THE Sercombe & Bolte Manufacturing Co. (Milwaukee) show a pneumatic tired machine hung on a scale that registers a weight of only  $17\frac{1}{4}$  pounds.

THE Marion Cycle Co. exhibit good machines, but the tires which are pneumatic, are badly spotted, and are not a feature to be proud of.

A HANDSOME pneumatic sulky was shown by the Norwood Manufacturing Co. (Baltimore, Md.)

THE Garfield Manufacturing Co. (Elyria, Ohio) have wax figures,—a man and woman,—mounted upon pneumatic-tired wheels, and riding all day long in the most lifelike manner possible.

THE Hartford Cycle Works (Hartford, Conn.) show single wheels in constant revolution, and a phonograph through the rubber tubes of which one can learn of the excellence of their wheel. They use pneumatic tires and black hard-rubber handles.

THE pneumatics in the exhibit of the Sparkbrook Manufacturing Co. (Coventry, England) looked too light to stand much strain,—an effect that was intensified by several that were either only partially inflated, or else had leaked badly.

THE heaviest pneumatic tires exhibited were on a two-wheeled tandem in the section occupied by the Raleigh Cycle Co. (Nottingham, England). The tires on these machines were nearly all pneumatics, and were made by the North British Rubber Co. of Edinburgh.

THE Premier Cycle Co., Limited (Coventry, England), showed about 150 pneumatic tires that bore evidence of good workmanship, but appeared lighter in weight than most wheelmen over here desire.

THE tires in the exhibit of the Warman & Hazelwood Co., Limited (Coventry, England), needed cleaning up, as they were badly spotted and gave their machines, which were otherwise all right, a second-hand appearance.

FIRST-CLASS pneumatic tires and good photographs of prominent wheelmen are the points of prominence in the exhibit of the Rouse-Duryea Cycle Co. (Peoria, Ill.)

A BROUGHAM with heavy solid rubber tires was exhibited by Charles H. Palmer, Jr. (Amesbury, Mass.)

Two types of pneumatic bicycles and an elegantly finished pneumatic sulky comprised the exhibit of W. S. Frazier & Co. (Chicago).

A CURIOSITY in the line of pneumatic tires was shown in the exhibit of the Quadrant Cycle Co. (Birmingham, England). It was a ribbed bearing surface on the tread of the wheels, the ribs being molded on its face and about an inch from each other.

THE Wayne Sulkyette Co. (Decatur, Ill.) show bicycles with plain pneumatics, grooved pneumatics, cushion, and solid tires.

THE tires on the Overman wheels were of the antimony variety and showed up in two shades of red. Experts spoke of them as indicating first-class workmanship.

THE tires on the wheels shown by the Yost Manufacturing Co. (Toledo, O.) looked especially well.

FRANK DENTLER & SONS (Parkville, Mich.) showed a pneumatic sulky as the important feature of their exhibit.

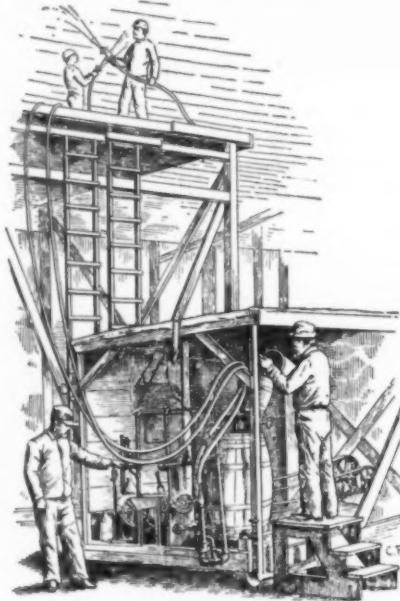
A CHILD'S tandem with red cushion tires is the most noticeable thing in the exhibit of the A. H. Clark Co., Chicago. The rest of their wheels are fitted with pneumatic tires.

THE Remington Arms Co., Ilion, N. Y., show four handsome machines with the popular "balloon tire."

A PNEUMATIC-TIRED sulky exhibited by the McMurray & Fisher Sulky Co., Marion, Ohio, is constantly surrounded by a circle of admirers.

THE Ames & Frost Co., Chicago, have one of the handsomest cycle pavilions. Wheels with pneumatic tires have been utilized in the making of the handsome fence that encloses their space. Their tires are red and black, and are of superior workmanship.

THE Sargent Manufacturing Co., Muskegon, Mich., exhibit several types of rubber-tired invalid chairs.



PAINTING MACHINE.

[Used at the World's Fair. Electric Motor drives small air-compressor. Paint applied on the same principle as the air-brush.]

THE Rouse-Hazard Co. show the numerous pneumatic tires of the ordinary type, their exhibit being a good one on the whole.

A FOUR-WHEEL, canopy top, cushion tire vehicle, propelled by pedals, is the feature of the exhibit of the Fenton Metallic Wheel Co. (Jamestown, N. Y.)

FOUR pneumatic wheels whirling on the end of four spokes that also whirl is the bid that the Lozier Manufacturing Co. (Cleveland, Ohio) make for the attention of the passer-by.

A GIANT pneumatic tire for show and not for use adorns the front of the space occupied by the Kenwood Manufacturing Co. (Chicago).

#### SOME OF THE FOREIGN EXHIBITS.

A FEATURE of the German village on the Midway Plaisance is a collection of foreign atomizers on sale. Most of them are similar to those handled by American importers. One style, however, differs from any that we have in our stores. It is a

small, neatly decorated bottle, with a dark red rubber ball upon it about the size of an English walnut. They are quite cheap, and find a ready sale to souvenir hunters.

THE air-cushions in the German chemical section are worth looking at. They are all of white cloth lined with rubber inside, and with a square patch of black rubber in the middle of the outer surface.

A HANDSOME rubber carpet covers the floor of the whole chemical section in the German exhibit. It is of German manufacture.

HARD-RUBBER goods for surgical uses, elastic stockings, etc., much like those made in this country, are shown in the German section and are displayed by George Wenderoth.

IN the carriage show most of the vehicles, however pretentious, stood on oil-cloth mats. The magnificent blue and gold coach of the Lord Mayor of London, however, stood on a handsome rubber carpet.

THE Brazilian exhibit at the Fair consists, as far as now displayed, of woods chiefly. The only indication that rubber is something that interests them is a sheet of paper upon which are displayed two leaves of the *syringa* tree.

IT is said that among the exhibits at the World's Fair none attracts the rubber trade more than the Liberian exhibit of crude rubber in the Agriculture building.

#### PERSONAL NOTES.

MR. JAMES BENNET FORSYTH, of the Boston Belting Co., on his return from California spent several days at the Fair, devoting especial attention to mechanical displays.

MR. A. N. SCHLESINGER, superintendent of the India Rubber Comb Co. (New York), spent several days at the Fair.

MR. FRED. MORGAN, of Morgan & Wright (Chicago), is a frequent visitor to Jackson Park, and spends a large share of his time when there in the gallery of Fine Arts.

### INDIA-RUBBER AT THE CENTENNIAL EXHIBITION OF 1876.

#### *Extracts from Official Reports.*

IT is safe to assume that a majority of the rubber-manufacturers in the United States to-day do not happen to have in their libraries a set of the volumes of "Reports and Awards—Philadelphia Centennial International Exhibition—1876." Even those now engaged in this trade who visited the Philadelphia exhibition may need to have their memories refreshed with regard to the displays of rubber goods made there, before undertaking to institute a comparison between the "Centennial" and the World's Columbian Exposition, now open at Chicago. For the convenience of the judges, and for making awards, all the exhibits at Philadelphia were classified in thirty-six groups, rubber goods for the greater part being assigned to "Group X—Clothing, Furs, India-Rubber Goods, Ornaments, and Fancy Articles." This group, in turn, was divided into ten classes, the latter two, with their sub-heading, appearing in the catalogue as follows:

#### CAOUTCHOUC AND GUTTA-PERCHA INDUSTRY.

Class 285.—India-rubber goods and manufactures.

Class 286.—Brushes.

The judges for this group were: [American] W. H. Chandler, Lehigh University, South Bethlehem, Pa.; William O. Linthicum and Benjamin F. Britton, New York; George Hewston, San Francisco; E. N. Horsford, Cambridge, Mass.; [Foreign] Ch. F. Dietz Mounin, France; Modest Kittiary, Russia; Edward Kanitz, Austria; and M. P. Empey, Canada.

Two reports made on the exhibits of rubber goods are reproduced herewith, as containing matter of practical value and historical interest, which is probably unavailable in the official reports to a great number of the readers of this journal.

#### RUBBER HOSE, RUBBER BELTING, AND WALRUS HIDE BELTING.

BY E. N. HORSFORD.

THE American firms exhibiting rubber fire-hose were the New York Belting and Packing Co., the National Rubber Co.,

the Gutta-Percha and Rubber Co., and the Star Rubber Co. Besides these, the house of H. Schrader, of St. Petersburg, Russia, exhibited fire-hose of superior quality, but of a caliber less than the standard recognized here, so that it was impossible to submit the Russian hose to a comparative test. The Star Rubber Co.'s hose was not represented by an agent, and the hose was not provided with the coupling necessary for experiment.

There were, besides, several exhibitors of cotton and linen hose by various forms of manufacture: riveted, sewed, and woven whole, and lined with rubber to render them waterproof; but as this lining did not materially add to their strength, they were regarded as properly to be excluded from the class of rubber manufactures. The experimental trials were limited to the samples submitted by the New York Belting and Packing Co., the National Rubber Co., and the Gutta-Percha and Rubber Co.

The hose tested was in each case four-ply, of  $2\frac{1}{2}$ -inch caliber, made up of successive layers of cotton duck coated with rubber composition, constituting a tube coated and lined with rubber composition, and the whole solidified by vulcanization.

The hose of the National Rubber Co. and that of the Gutta-Percha Co. were made by winding the duck coated with composition upon a mandrel, with the warp of the duck parallel to the axis of the hose. That of the New York Belting and Packing Co. was made by cutting the duck coated with uncured rubber composition into narrow strips, running obliquely across the warp, and then so cementing these strips and winding them upon the mandrel as to present the warp and filling at an inclination of about  $45^{\circ}$  to the axis of the hose. The latter arrangement increases the flexibility of the hose, and diminishes correspondingly the liability to injury by the abrupt bending to which hose is often subjected in practical use. At the same time it provides for an increase of capacity under pressure,—an increase of diameter with a concomitant diminution of length. With equal strength of duck such hose would have burst at a pressure inferior to that which hose with the warp parallel and the filling at right angles to the axis of the hose would require. The reason is this: With increase of the diameter of the hose under pressure the greater is the number of units of liquid exerting

any given pressure, while the tenacity to be overcome in the texture of the duck and rubber wall remains a constant quantity. Assuming the increase in caliber at the instant of bursting to have been  $\frac{1}{4}$  inch, or from  $2\frac{1}{2}$  to 3, or from 100 to 125, the pressure would have been increased relatively to the strength of a given area by the quantity of one-fifth.

The strain on hose in practical service rarely reaches 225 pounds to the square inch. In this quality the three exhibits subjected to trial by hydrostatic pressure exceeded in strength any practical need. A preliminary experiment was made with a section of the New York Belting and Packing Co.'s hose of but 8 feet in length. It was not weighed, and gave way under a pressure of 450 pounds. The principal experiments were made with sections of 50 feet in length, which were first weighed. That of

The New York Belting and Packing Co. weighed  $66\frac{1}{2}$  pounds.

The Gutta-Percha and Rubber Co. weighed  $67\frac{1}{2}$  pounds.

The National Rubber Co. weighed 59 pounds.

The New York Belting and Packing Co.'s hose burst at 425 pounds.

The Gutta-Percha and Rubber Co.'s hose burst at 435 pounds.

The National Rubber Co.'s hose did not burst at 500 pounds, at which pressure the couplings gave way.

The rupture of the New York Belting and Packing Co.'s hose presented a peculiar section, having the shape of two V's point to point > < thus; the lines following the warp and filling, and the short line uniting the apices equally inclined to the direction of the threads of the warp and filling. This form of the rupture was regarded by experts as evidence of excellence of manufacture. Warp and filling were of equal strength.

The rupture of the Gutta-Percha and Rubber Co.'s hose was slightly irregular, but in the main across the filling, that is, along a line parallel to the axis of the hose. This is the direction in which rupture should take place, where the duck is wound with the warp parallel to the axis of the hose, and where the strength of the warp equals or but slightly exceeds that of the filling.

The diameter of the New York Belting and Packing Co.'s hose was increased about half an inch,—attended with a shortening estimated at about 2 per cent. The diameter and length of the other two exhibits were not appreciably changed.

No experiments suggested themselves which might be considered the equivalents of actual wear in ordinary use. Actual practical use has shown that the warp of the duck where the fiber is parallel to the axis of the hose is subjected to greater strain in abrupt bending than the warp and filling where the thread is obliquely arranged. There is no opportunity for it to yield except by rupture.

As all the three exhibits showed a strength greatly exceeding the ordinary requirements of service, and as all were put together with skill and cured with care, it was deemed just to commend them all alike for award. The experiments were conducted by Mr. Gardner Sanderson, detailed by Mr. John S. Albert, chief of the bureau of machinery, under the direction of the judges of Group X.

RUBBER belting was an exhibition by four American companies, viz.: the National Rubber Co., the New York Belting and Packing Co., the Gutta-Percha and Rubber Co., the Star Rubber Co., and also by the house of H. Schrader, of St. Petersburg, Russia. The delay in the opening of the Russian department prevented the samples of belting from coming to the attention of the judges in time for the portion of the experimental testing made to determine the adhesion.

The manufacture of belting is simple. Cotton duck is overspread with rubber composition, and the sheets of duck so coated are piled one upon another to any desired thickness, as of two-, three-, four-, or five ply, then under pressure subjected to a vulcanizing heat for the time necessary to accomplish proper curing. The principal valuable qualities in a belt are: (1) its adhesion to the surface of the pulley; (2) its strength or capacity to resist strain; (3) its absence of the stretching quality; (4) its durability.

The adhesion depends upon two qualities: (1) the smoothness of the surface of the belting, which permits contact with the smooth surface of the pulley; and (2) a yielding but elastic surface, which, under strain, insures a more perfect contact.

The mode of manufacture of the duck, and its incorporation into the belting with the warp parallel to the length of the belting, insure the product against stretching. The durability depends upon the care observed in the curing, and in this all the samples seemed to have been cured with nice attention to temperature.

The apparatus arranged to test the adhesion was of extreme simplicity. A pulley six inches wide and  $15\frac{1}{4}$  inches exterior diameter was supported over free space. A strip of each kind of six-inch belting was in turn placed upon the pulley by attaching to either end a weight of fifty pounds. The pulley being fixed against rotation, weights were added to one end of the strip of belting until the belt slipped upon the pulley.

The Star Rubber Co.'s and the New York Belting and Packing Co. six-inch belting was three-ply. Each of the others was four-ply. The thickness of samples of belting was as follows:

Star Rubber Co.'s.....	$\frac{1}{16}$ of an inch.
New York Belting and Packing Co.'s .....	$\frac{1}{16}$ of an inch.
National Rubber Co.'s.....	$\frac{1}{16}$ of an inch.
Gutta-Percha and Rubber Co.'s.....	$\frac{1}{16}$ of an inch.

The measure of the adhesion was the weight required to overcome it. The weight was found to be, in the case of the

Gutta-Percha and Rubber Co.'s belting.....	$48\frac{1}{4}$ pounds.
Star Rubber Co.'s belting.....	$59\frac{1}{2}$ pounds.
National Rubber Co.'s belting.....	$60\frac{1}{4}$ pounds.
New York Belting and Packing Co.'s.....	70 pounds.

Taking the highest of these at 100, we have these ratios:

New York Belting and Packing Co. ....	100.
National Rubber Co. ....	86.78
Star Rubber Co. ....	85.
Gutta-Percha and Rubber Co. ....	68.92

The strength of the belting was tested in a Riehle's machine under the direction of Mr. Hirst, of the superintendence of Machinery Hall, detailed by Mr. Albert; the testing machine admitting belting of a maximum width of three inches. Three of the exhibitors had samples of this width: the National Rubber Co., the New York Belting and Packing Co. and H. Schrader, of St. Petersburg. Each was three-ply. The thickness of the National Rubber Co.'s exhibit was  $\frac{1}{16}$  of an inch, while that of the New York Belting and Packing Co. was  $\frac{1}{16}$ . The Russia belting was  $\frac{1}{16}$  of an inch. The length of the fiber of the duck in the belting of the National Rubber Co. ranged from .8 to 1.5 inch, and that of the New York Belting and Packing Co. from .5 to 1 inch. The duck used by the National Rubber Co. was of finer quality than that in use by the New York Belting and Packing Co. The New York Belting and Packing Co.'s three-inch three-ply belting, without stretching, gave way under a strain of exactly 3000 pounds. That of the National Rubber Co. gave way at 3500 pounds. The Russia belting gave way at 2750 pounds.

A SAMPLE of walrus belting, from Norway, manufactured by

Klemm, Hanson & Co., of Trondhjem, was tested under direction of Mr. Albert and referred to me. Its thickness was  $\frac{1}{16}$  of an inch. The adhesion was determined as that of the samples of rubber belting was, and with the same apparatus. With the flesh side against the pulley, the belt slipped at 88 pounds. With the hair or outside against the pulley the belt slipped at 38 pounds. Under the test in Riehle's machine a three-inch strip gave way at 4175 pounds. As the thickness was more than that of the rubber belting, the strength should be rated as about one-half of the observed result of experiment.

In the judgment of the experts in the Leather building, where opinion was sought, it was not comparable with good leather or rubber belting on account of its liability to stretch; but it was well adapted to service on account of its porosity, for emery belting, since its porous structure would enable it to take up and hold oil and emery.

#### CAOUTCHOUC AND GUTTA-PERCHA.

BY W. H. CHANDLER.

THE manufacture of these products has rapidly increased since Charles Goodyear's discovery of vulcanization in 1839, and in the United States especially the industry has assumed large proportions. There were very few foreign exhibitors in this line.

#### RUBBER-PRODUCING PLANTS.\*

Of rubber-producing plants a fine exhibit was made by A[ustin] Goodyear Day, of New York, as follows:

Ficus Brasiliensis, Brazil.	Euphorbia triangularis, South Africa.
Ficus lucidus, Brazil.	Euphorbia Mackaii, Java.
Ficus macrophylla, Australia.	Euphorbia splendens, Mexico.
Ficus Ledrickenii, Australia.	Euphorbia punicea, Mexico.
Ficus Australis, Australia.	Philodendron pertusum, or Monstera delicosa, Brazil.
Ficus elastica, East Indies.	Galipia odoratissima, Brazil.
Ficus rigida, East Indies.	Aralia Cookii, Brazil.
Ficus nymphaefolia, East Indies.	Pereskia grandiflora, Mexico.
Ficus religiosa, Palestine.	
Euphorbia monstrosa, Cuba.	

#### CRUDE CAOUTCHOUC.

Smythe, Earle & Co., New York, . . . brokers in India-rubber and Gutta-percha, made a very interesting exhibition, including a few specimens of caoutchouc-producing plants, a complete outfit for a rubber gatherer in Brazil, the milk of the rubber-tree, and a large variety of crude rubber in the original packages, aggregating about 6000 pounds. Among the plants were the *Ficus elastica*, from the East Indies, and the *Siphonia elastica*, from Brazil. The *Castillio elastica*, from Central America, died in transit. The seeds and milk of the rubber-tree were among the exhibits, and the outfit for a Brazilian rubber-gatherer included the baskets to carry provisions, the hatchet to tap the tree, the earthen cups to catch the milk from the taps, the gourds to collect it from the cups, the metallic pans to hold the milk, the wooden spaddle which is dipped in the milk, and the furnace and oily palm-nuts which are burnt therein, and by which the coagulated milk upon the spaddle is dried and smoked. There were also specimens of the different gums washed and sheeted in the manufactory, and a specimen of fine Pará rubber, twenty-six years old. [A list is given of twenty-eight specimens of crude rubber, of different sorts, including "Balata from Brazil."] The National Rubber Co., Providence, and the India Rubber Comb Co., New York, also exhibited plants and samples of crude caoutchouc.

\* The enumeration of rubber-bearing species—including the method of spelling the terms—in the above report, is copied faithfully, though not in all cases in accordance with the authorities of to-day.—THE EDITOR.

[Exhibits of crude rubber were made by Raymonde José Rabello and Elias José Nunez, of Pará, Brazil, from the provinces of Rio Grande do Norte, Amazonas and Pará; by the Commissions of the provinces of Ceará and Rio Grande do Norte; and by the State government of Campeche, Mexico. The Commissioners for Victoria exhibited Australian rubber; the Netherlands government, India-rubber and Gutta-percha from the East Indian colonies; the government of Trinidad, "Galata gum, or Trinidad gutta-percha, two demijohns of sap, and six cakes."] Gutta-percha, from the *Mimusops globosa*, Griseb., was shown from the State of Maturin, Venezuela.

G. W. Mowbray, North Adams, Mass., made an exhibit of Gutta-percha, crude, also worked and ground, and wire insulated by the same, for blasting purposes. . . .

#### INDIA-RUBBER MACHINERY.

W. E. Kelly, New Brunswick, N. J., [exhibited] machinery for manufacturing India-rubber, consisting of (1) corrugated rolls, with which the crude rubber is washed with cold water; (2) smooth, chilled rolls for mixing the washed rubber, sulphur, and other chemicals; one of these rolls revolves three times as fast as the other; both rolls are heated internally by steam; (3) steam-heated engraved rolls for impressing the outside of shoes; (4) three high calender rolls, heated by steam, for coating cloth with rubber, for the insides of shoes. This machinery was operated by the National Rubber Co., whose employés also finished the gloves and vulcanized them in a small steam-heated oven. . . .

#### RUBBER HOSE, BELTING AND PACKING.

[Besides the firms named in the report by Professor Horsford] the exhibitors of these articles were:

The Eureka Fire Hose Co., New York.  
Wannalauseit Manufacturing Co., Boston.  
The Blake Hose Co., New York.  
The Columbia Car Spring Co., New York.  
National Car Spring Co., New York.  
Russian-American Rubber Co., St. Petersburg, Russia.

#### BOOTS AND SHOES.

[The National Rubber Co.] consumed 1,250,000 pounds of rubber in 1876. Their production from July, 1875, to July, 1876, was \$2,500,000, of which about \$1,400,000 was for boots and shoes, and the remainder for packing, belting, hose, druggist's articles, clothing, etc. They employ 900 hands. This company is probably the largest manufacturer in this country, manufacturing a large variety of goods. They make over 300 distinct varieties of shoes. Among those deserving special mention is the Monitor and Snow-excluding gaiter.

The New Brunswick Rubber Co., New Brunswick, N. J.—A general assortment of neat, well-made shoes.

Molded Heel Stiffening Co., Lynn, Mass.—A stiffener of hard rubber, sold for three cents per pair, of which 25,000,000 pairs have been sold since 1870.

Chadeayne & Christian, Yonkers, N. Y.—Ventilated rubber boots.

Russian-American India Rubber Co., St. Petersburg, Russia.—This company was founded in 1860. It employs twelve steam-engines of 700 horse-power and 1378 men and women. The exhibit included articles of dress, boots, shoes, belts, straps, surgical, traveling, and household articles of India-rubber, hose, and packing, a large variety of goods of excellent quality, billiard strips and telegraph insulated wire. Of boots and shoes it exhibited a good variety, with a novelty of fur-lined shoes and galoshes.

#### CLOTHING.

The Gossamer Rubber Clothing Co., Boston.—Waterproof cloaks, hats, leggings, and umbrellas, made from Scotch ging-

ham, covered with a thin coating of rubber, sun-cured, at low prices; weight, 12 to 16 ounces. These materials afford light garments at small cost, though they probably have not the same durability as the English mackintosh.

The National Rubber Co., Providence.—A large variety of clothing, including "luster," . . . "dull finish," . . . and "flocked."

The Russian-American Rubber Co., St. Petersburg.— . . . Especially commendable was a coachman's coat of cotton check covered with rubber of a dead-white color, not equaled by any other manufacturer.

Simon, May & Co., Nottingham, England.—A large variety of elastic gorings, gussetings, and boot welts. . . .

John C. McGee, Belfast, Ireland.—Mackintosh coats, with silk lining and paramatta outside; also reversible coats of silk and rubber, made by twelve applications of a solution of caoutchouc. These coats were superior to all others on exhibition.

Bally & Schmitter, Aarau, Switzerland.—Elastic boot webs of cotton, silk, and linen. The firm employs 450 hands and 140 looms.

Schneck & Kohnberger, Vienna, Austria.—Cotton gorings for shoes, at low prices.

Lucien, Fremaye & Co., Paris, France.—Elastic tissues.

Nashawannuck Manufacturing Co., Easthampton, Mass.; American Suspender Co., Waterbury, Conn.; and National Suspender Co., New York.—Elastic suspenders of good quality.

The Easthampton Rubber Thread Co., Easthampton, Mass.—Rubber thread for use in gorings and webs. This is now cured by water, but formerly by steam, which produced a less uniform result.

The Glendale Elastic Fabric Co., Easthampton, Mass.—The manufactory started in 1860, but was organized as a stock company in 1867. It employs 200 hands and in 1876 produced 800,000 yards of cord and braids, 40,000 gross yards of fine loom webs for gaiters and pocket-books, and 10,000 gross yards of elastic belt webs; total value, \$400,000.

#### HOUSEHOLD GOODS.

Davidson Rubber Co., Boston.—Bath-tubs, air-pillows, and beds of good design and fine finish.

National Rubber Co.—. . . Similar exhibits, with . . . door-mats and curry-combs.

W. B. S. Taylor, New York.—Patent gas tubing, which is, without doubt, the best article of the kind in the market; it consists of a spiral wire core, covered with a coating of glue and glycerin, placed between two layers of rubber, and finished with a flocked or woven surface.

#### MEDICAL AND SURGICAL GOODS.

Davidson Rubber Co., Boston.—. . . Among their specialties were seamless tubes, bandage gum for dentists, sun cured sponge bags, rubber-lined, and water bags.

National Rubber Co., Providence.—Goods in this line, of good variety and quality.

The following Parisian firms exhibited surgical instruments made of rubber: Jean Pierre Benas, Rondeau Brothers, Vergne & Chose Brothers.

#### MISCELLANEOUS ARTICLES.

Crane & Co., Newark, N. J.—Soft-rubber bits for tender-mouthed horses.

#### HARD-RUBBER MANUFACTURES.

The India-Rubber Comb Co., New York.—A fine exhibit of goods, of great variety and beauty of finish, including medical and household articles, photographic and telegraphic utensils, ornamental articles, combs, etc. Deserving special mention were nine-inch tenpin balls, weighing about ten pounds each,

calender-rolls for paper manufacturers, and steel rolls with coating of hard rubber,  $\frac{1}{8}$  inch thick. These are not affected by acids, and press the paper more evenly and thoroughly than those of metal, thus saving time in drying. Tube and sheet rubber of large size and fine finish, and some medallions of intricate design and fine workmanship, made by a new process, were also commendable.

G. Magnus & Co., Berlin, Prussia.—Hard rubber billiard balls of good workmanship. These balls are sold for about one-half the price of ivory balls, but do not compete successfully with the latter. They take the force of the cue well, but do not rebound with accuracy from the cushions or from each other. Probably the metallic oxides introduced in the rubber are unevenly distributed, so that the center of gravity does not coincide with the center of the ball.

Andrew Albright, Newark, N. J.—Hard-rubber coated harness.

J. Dickson & Co., Philadelphia.—A patent process for engravings from hard-rubber blocks, which are cheaper and more durable than wood; 100,000 impressions have been taken from one block. The method of production is as follows: lithographic stone is covered with asphaltum, engraved and treated with nitric acid. The mixture of rubber and sulphur is then pressed upon the stone, subjected to a vulcanizing temperature, and subsequently finished with a graver. . . .

The Russian-American Rubber Co., St. Petersburg, Russia.—A cylinder cover of hard-rubber outside and soft-rubber lining, of excellent make.

Louis von Tuxen, Stockholm, Sweden.—. . . patent leather manufactured from new and old leather, which is ground and then condensed by chemicals, and used for tar-paulins, sun-tents, etc. . . . The raw materials are leather refuse, India-rubber and chemicals. The India-rubber is dissolved in turpentine, benzine, or bisulphid of carbon. The manufactory was established in 1865 and employs fourteen hands and a 4-horse-power engine.

#### TELEGRAPH WIRE.

Austin G. Day exhibited wire insulated with a patented mixture of caoutchouc, sulphur, oils, bituminous matters, and metallic oxids, of excellent insulating properties, durability, and very low cost. The article is termed kerite.

#### RUBBER-MANUFACTURERS.

The following list of manufacturers of caoutchouc in the United States has been compiled from various sources, and is believed to be quite complete. It does not include the manufacturers of rubber jewelry or dentists' goods:

- .Etna Rubber Co. (Boston): Clothing.
- Akron Rubber Co. (Akron, Ohio): Packing, belting and hose.
- American Hard Rubber Co.
- Blake Hose Co. (Boston): Hose.
- Boston Belting Co. (Boston): Packing, belting, hose, etc.
- Boston Car-Spring Co. (Boston): Packing and car-springs.
- Boston Rubber Shoe Co. (Malden, Mass.): Shoes.
- L. Candee & Co. (New Haven): Shoes.
- C. M. Clapp & Co. (Boston): Clothing.
- Cleveland Rubber Co. (Cleveland, Ohio): Packing and car-springs.
- Columbia Car-Spring Co. (New York): Car-springs.
- The Combination Rubber Co. (New York): Packing and hose.
- Davidson Rubber Co. (Charlestown, Mass.): Bands and rings and surgical goods.
- A. G. Day & Bro. (Seymour, Conn.): Pencils.
- C. B. Dickenson (Brooklyn): Bands and rings and surgical goods.
- Eugene Doherty.
- Eagle Rubber Co. (Boston): Wringer-rolls.
- Easthampton Thread Co. (Easthampton, Mass.): Rubber thread.

A. C. Eddy & Studley (Providence) : Syringes.  
 Elastic Fabric Co. (Boston) : Elastic goods, belting and hose.  
 Eureka Fire Hose Co. (New York) : Hose.  
 E. Faber & Co. (New York) : Elastic bands and rings.  
 Glendale Elastic Fabric Co. (Easthampton, Mass.) : Elastic fabrics.  
 B. F. Goodrich & Co.  
 Goodyear I. R. Glove Co. (Naugatuck, Conn.) : Clothing and gloves.  
 Goodyear Metallic Rubber Shoe Co. (Naugatuck, Conn.) : Shoes.  
 Goodyear Rubber Co. (Middletown, Conn.) : Shoes.  
 Gossamer Rubber Clothing Co. (Boston) : Clothing.  
 H. A. Hall A Co. (Boston).  
 Hamilton Rubber Co. (Trenton, N. J.) : Packing and hose.  
 Hayward Rubber Co. (Colchester, Conn.) : Shoes.  
 E. F. Heath (Newark, N. J.) : Cloth.  
 D. Hodgman & Co. (New York) : Clothing.  
 F. Holton (Brooklyn) : Surgical goods.  
 India Rubber Comb Co. (College Point, L. I.) : Hard-rubber combs, etc.  
 L. Joy & Co. (Newark) : Clothing.  
 Keystone Rubber Co. (Williamsport, Pa.) : Shoes.  
 Lambertville Rubber Co. (Lambertville, N. J.) : Springs, packing, belting, etc.  
 Long Island Rubber Co. (Brooklyn) : Shoes.  
 Marionville Rubber Co.  
 Mercer Rubber Co. (Trenton) : Springs, packing, and hose.  
 Meyer Rubber Co. (New Brunswick, N. J.) : Shoes.  
 Morrisville Rubber Co. (Morrisville, N. J.) : Springs, packing, and hose.  
 Mystic Rubber Co. (Mystic, Conn.) : Clothing.  
 Nashawannock Manufacturing Co. (Easthampton, Conn.) : Elastic fabrics.  
 National Car-Spring Co. (New York) : Car-springs.  
 National Rubber Co. (Bristol, R. I.) : All kinds of soft rubber goods.

Newark Rubber Co. (Newark, N. J.)  
 New Brunswick Rubber Co. (New Brunswick, N. J.) : Shoes.  
 New England Car-Spring Co. (New York) : Springs, packing, and hose.  
 New Jersey Car-Spring Co. (Jersey City) : Springs, packing, and hose.  
 New Jersey Rubber Co. (New Brunswick, N. J.) : Shoes.  
 New York Belting and Packing Co. (New York) : Packing, belting, hose, etc.  
 New York Gutta-Percha and Rubber Manufacturing Co. (New York) : Belting, packing, and hose.  
 New York Rubber Co. (New York) : Toys, belting, and hose.  
 Novelty Rubber Co. (New Brunswick, N. J.) : Hard-rubber canes, buttons, etc.  
 C. Roberts (Newark) : Elastic bands and rings.  
 Rubber Clothing Co. (New York) : Rubber clothing.  
 Rubber-Coated Harness Trimming Co. (Newark) : Rubber-coated harness trimmings.  
 Rubber Comb and Jewelry Co. (Bloomingdale, N. J.) : Rubber combs and jewelry.  
 Rubber Step Manufacturing Co. (Boston) : Rubber steps.  
 Seamless Rubber Co. (Naugatuck, Conn.) : Druggists' articles.  
 Star Rubber Co. (Trenton, N. J.) : Packing and hose.  
 Stewart Rubber Co. (Rochester, N. Y.) : Shoes.  
 Tyer Rubber Co. (Andover, Mass.) : Elastic fabrics.  
 Union Rubber Co. (Harlem, N. Y.) : Clothing.  
 Vulcanite Jewelry Co. (New York) : Jewelry.  
 Wannalauset Manufacturing Co. (Boston) : Hose.  
 Ward Bros. Rubber Co.  
 Whitehead Bros. (Trenton, N. J.) : Packing and hose.  
 Woonsocket Rubber Co. (Woonsocket, R. I.) : Shoes.

The value of rubber goods manufactured annually in the United States is estimated at \$26,000,000.

## RUBBER IN THE FIRST GREAT WORLD'S FAIR.

*The Display in London in 1851.*

THE Great Exhibition of the Works of Industry of All Nations, opened in London on May 1, 1851, contained displays by about 15,000 exhibitors, of whom nearly one-half were British. The remainder represented the productions of more than forty foreign countries, comprising almost the whole of the civilized nations of the globe. The state of the India-rubber industry at that period—now forty-two years ago—may be indicated to some extent by presenting here a list of the displays in the Exhibition of 1851 belonging to this class. These displays, by the way, were scattered throughout the building, no attempt being made to group the rubber products of any class. The items are copied below in the order in which they were severally found in the official classification. It may be noted that, though Brazil and the African colonies were represented at the Exhibition, no crude rubber appeared in their display. It may be of interest, too, to notice how few rubber exhibits were furnished by France and Germany.

### THE UNITED KINGDOM.

#### SECTION I.—MACHINERY.

CLASS 10—PHILOSOPHICAL, MUSICAL, HOROLOGICAL, AND SURGICAL INSTRUMENTS.

419 WHISKAW, F., 9 John St., Adelphi, Des. and Inv.—Telekerephona, or speaking telegraph. Gutta-percha telephone. . . . Gutta-percha tube and lathe-band, as first made at the Society of Arts in 1845. Subaqueous insulated electric telegraph conductors. . . .

421 McNAIR, A. & Co., 33 Oswald St., Glasgow, Inv. and Manu.—Conductor for electric telegraphs, consisting of a copper wire insulated with Gutta-percha, and inclosed in a leaden tube.

444 WESTMORELAND, J., Derby, Des.—Patent Gutta percha electrical machine.

465 WELLWAY, J. S., 7 Denmark St., Bristol, Inv. and Manu.—Siphon trough, for galvanic battery, made of Gutta-percha and vulcanized India-rubber.

615 HEERS, J. H., 46 Liverpool St., city, Prop.—Pulpit, containing a Gutta-percha hearing apparatus, for the deaf in churches, chapels, lecture-rooms, etc.

620 LEARED, A., Oulart, Wexford, Ireland, Inv.—Double stethoscope, made of Gutta-percha.

624 SIMPSON, G., F.R.C.S., 6 Bedford St., Bedford Sq., Manu. and Inv.—Anatomical model of the human figure, in papier-mâché and Gutta-percha. Vertical section in Gutta-percha of the human head and neck.

712 CLAPHAM, —, Leeds.—Map on gum elastic.

720 TRUMAN, —, 40 Haymarket,—Artificial teeth in Gutta-percha.

#### SECTION III.—MANUFACTURES.

CLASS 20—ARTICLES OF CLOTHING, FOR IMMEDIATE, PERSONAL, OR DOMESTIC USE.

4 HALL, J. S., 308 Regent St., Manu.—Elastic stocking-net boots, elastic webbing, and improved elastic materials for boots and shoes.

33 WEATHERHEAD, H., 27 Panton St., Haymarket, Manu.—Silk and India-rubber braces. Gros-de-Naples belt, with silk and India-rubber springs.

40 JOUBERT, C., 8 Maddox St., Hanover Sq.— . . . Elastic corset belt for invalids. India-rubber tissue, of French manufacture.

42 MARTIN, E. & E. H., 504 Oxford St., Des.—Elastic bodices, composed of vulcanized India-rubber and other materials. India-rubber belts.

CLASS 22—GENERAL HARDWARE, INCLUDING LOCKS AND GRATES.

430 SPARKS, J., 12 King St., Tower Hill, Inv.— . . . India-rubber door hinge.

CLASS 28—MANUFACTURES FROM ANIMAL AND VEGETABLE SUBSTANCES, NOT BEING WOVEN OR FELTED.

72 HODGES, R. E., 44 Southampton Row, Russell Sq., Inv. and Manu.—Mechanical purchases; highly elastic tackle, made of India-rubber, etc. . . . Application of India-rubber to guns, bows, etc.

76 MACKINTOSH & CO., 73 Aldermanbury, and at Manchester, Imp. Manu. and Pat.—India-rubber specimens, illustrative of the manufacture, and collection of manufactured articles, vulcanized and unvulcanized.

77 BUNN, LOCKINGTON & CO., 19 and 20 Walbrook, Imp.—Specimens of the various descriptions of native Pará India-rubber, or caoutchouc, and of Gutta-percha, with samples illustrative of the various stages of manufacture, and of the purposes to which each description is applied.

78 NICKELS, C. & CO., 13 Goldsmith St., Cheapside, Manu.—Various articles manufactured from India-rubber.

81 MATTHEWS, S., 58 Charing Cross, Manu.—Large sized India-rubber portable boat, and India-rubber cloak boot, designed by Lieut. Hackett, R. N. India-rubber portable bath.

83 HANCOCK, J. L., Goswell Mews, Goswell Rd., Manu.—Portable India-rubber shower-bath, hose reel, and inflated air-tight bed chair.

85 THE GUTTA PERCHA CO., 18 Wharf Rd., City Rd., Imp. Pat. and Manu.—Gutta-percha: collection of specimens illustrative of its various applications and modes of manufacture.

86 THORN & CO., Gutta-percha manufacturers.—Looking-glass frames and console tables, and decorations.

87 WALKER, T., 1 Conduit St., Regent St., Inv. and Manu.—Gutta-percha hat-bodies.

90 HANCOCK, C., 48 Milner Sq., Islington, Manu.—Gutta-percha tubes, picture-frames, machinery belts, etc., and metallo-thionised Gutta-percha.

96 CLAYTON, B., 54 Mansfield St., Kingsland Road.— . . . New methods of inlaying wood, Gutta-percha, paper-maché, etc.

CLASS 29—MISCELLANEOUS MANUFACTURES AND SMALL WARES.

194 PAGE, ELEANOR & W., Kennington Common, Manu.— . . . Gauntlets, India-rubber gloves, leg guards, falls, stumps, etc.

196 LILLYWHITE & SONS, 10 Princes' Ter., Islington, Inv. and Manu.— . . . India-rubber gloves, flannel dress, etc.

198 DARK, R., Lord's Cricket Ground, Inv. and Manu.—Articles used in the game of cricket; tubular India-rubber gloves. . . .

253 MOORSON, Miss, Kensington.—Gutta-percha models.

#### COLONIAL POSSESSIONS.

##### INDIAN ARCHIPELAGO.

ARTICLES COLLECTED BY THE LOCAL COMMITTEE OF SINGAPORE.

##### [Natural Productions.]

40a Gutta-percha (Malay Peninsula—Jahore).

##### [Agricultural and Industrial Implements.]

266 Gutta-percha timber or draw bucket.

267 Gutta-percha bucket.

268 Gutta-percha whips.

SUPPLEMENTARY COLLECTION FORWARDED BY STEAMER.

##### [Natural Productions.]

10 Gum caoutchouc, India-rubber (Lampungs-Sumatra).

##### [Implements and Articles of Domestic Use.]

173a Gutta-percha splints, for setting broken limbs.

ARTICLES COLLECTED BY THE LABUAN GOVERNMENT.

##### [Natural Productions.]

7 Caoutchouc (Northwest coast of Borneo).

##### EASTERN ARCHIPELAGO.

2 HAMMOND, W. P. & CO., Merchants, London.—Specimens of . . . Gutta-percha; gum caoutchouc, or India-rubber; . . .

#### FOREIGN STATES

##### AMERICA, UNITED STATES OF.

136 FRISBIE, M. J., New York.—Specimens of India-rubber shoes.

206 WESTERN FIRE COMPANY, Cincinnati, Ohio.—Hose carriage.

219 ARMSTRONG, S. T., New York.—India-rubber air pontoons.

294 HAYWARD RUBBER CO., Colchester, Connecticut.—Specimens of India-rubber boots and shoes.

295 GOODYEAR RUBBER CO., Naugatuck.—India-rubber.

308 DAY, H. H., New York.—India-rubber manufactures.

378 GOODYEAR, C., New Haven, Connecticut.—India-rubber goods.

382 CHURCH & CRITTENDEN, New York.—India-rubber shoes.

#### FRANCE AND ALGIERS.

297\* LEBLOND, J. D., Carver, 5 Rue St. Louis (au marais), Paris.—Patent India-rubber male and female figures for artists.

726 VIK, J., Caoutchouc Manufacturer, Rue 161 St. Jacques, Paris.—Caoutchouc tissues, elastic stockings, belts, knee-caps, etc.

1416 RABOURDIN, —, Manufacturer, 88 Rue des Marais, St. Martin, Paris.—Braces; garters; silk and India-rubber fabric.

#### GERMANY. ZOLLVEREIN STATES.

400 KOHLSTADT, L., Cologne, Manu.—Braces and garters, of silk and caoutchouc.

781 ROMPLER, J. J., Erfurt, Manu.—India-rubber elastic braces and watch-guards. Silk and half-silk shoe stuffs, mixed with India-rubber: shoes made of the same material.

#### RUSSIA.

311 LERKHE, —, St. Petersburg, Manu.—Clogs, in India-rubber, for ladies and gentlemen. Waterproof morocco pillow.

328 COUNT TOLSTOY, T., Vice-President of the Imperial Academy of Fine Arts. St. Petersburg, Sculp.— . . . Medals in Gutta-percha, commemorative of the Turkish and Persian wars.

Undoubtedly there were other exhibits embodying India-rubber or Gutta-percha, in the departments devoted to medical and surgical exhibits and to electrical apparatus. There is no guide to these, however, in the official catalogue.

#### SELLING RUBBER GOODS TO UNCLE SAM.

THE Assay Office of the United States uses a considerable quantity of rubber goods, in the shape of gloves, boots and shoes, tubing, etc., the principal object being to protect operators against acids employed in tests. The Treasury Department advertises once a year for bids on these supplies, to be opened June 1. The award is not prompt, as generally the successful bidder is informally allowed to complete his line of samples after the award, and in the course of red-tape procedure the final decision comes back a week or two afterwards from Washington. There is now some inclination on the part of manufacturers to pay attention to the business of supplying the government with such goods, but it is only a recent thing. The amounts used are small, the red tape considerable, and more annoyance accompanies all such transactions than is generally supposed. The result has been, and is now, that one or two young men who make a specialty of furnishing the government with small lots of merchandise—rubber goods, as well as a hundred other articles—get some prices, add a first-class commission to them, and submit the whole to the government officers. As their bid will be in most cases the only one, they get the award. Then samples are "hustled" from first hands to Washington, and the contractor closes the transaction, except in the delivery of the goods. These deliveries are of such a picayunish character that rarely any one would care to look after them, but the broker is in the business, and day after day he cements more closely a bond of friendship with the official by contact with him, which gives him a decided advantage. There are two persons in New York city who attend to such business, and they have grown up in it. They are both prosperous, and it is supposed that they make each about \$6000 per annum in their unique calling.

CONSIDERABLE trouble was experienced in obtaining proper valves for the United States cruiser *Baltimore*, the specifications calling for a compound unknown in this country. After much wrestling with the subject a chemist solved the difficulty and affairs then went on without any trouble.

## SALE OF THE PARA RUBBER SHOE PLANT.

ALTHOUGH still in existence legally, the Pará Rubber Shoe Co. has passed into history after an exceedingly hard struggle for life. The plant built for this company at South Framingham, Mass., has passed into hands that will utilize it for a purpose far different from what it was originally intended for. Colonel Albert A. Pope, of the Pope Manufacturing Co., is the purchaser, and in the near future a full-fledged bicycle-factory will run full-blast on the ground where the promoters of the Pará company had hoped to see one of the greatest rubber-shoe factories in the world. It is no secret that the property has been owned for several months by the United States Rubber Co., and it was this concern which finally transferred it to Colonel Pope.

The Pará Rubber Shoe Co. was first thought of in the early part of 1881, and the parent of the enterprise may be said to have been Mr. John H. Stickney. For more than twenty-five years Mr. Stickney had been associated more or less closely with the rubber trade, and it was through his unusually extensive acquaintance among the various members of the firm that he was enabled to gain the support of Mr. A. L. Coolidge, of the firm of Houghton, Coolidge & Co., boot- and shoe-manufacturers. Mr. Stickney had previously been associated with Mr. T. C. Wales, one of the incorporators of the Wales-Goodyear Rubber Shoe Co. Messrs. Stickney and Coolidge allowed no grass to grow under their feet and in less than ten months they succeeded in pledging \$200,000 worth of the stock, in shares of \$1000. The concern was incorporated under the laws of Massachusetts, and early in 1882 work on the plant at South Framingham was commenced. The infant company received material aid from the South Framingham Improvement Society, as an inducement for the location of the plant in that place. As a matter of fact this organization practically owned the plant, leasing it to the Pará company with the privilege of buying at any time. The original officers were: A. L. Coolidge, president; J. H. Stickney, treasurer and clerk; A. L. Coolidge, J. H. Stickney, Ezra Farnsworth, S. D. Warren, Oliver Ditson, William O. Grover, Oliver Ames, Henry Mason, and Samuel Johnson, directors.

Hardly had work on the plant been commenced when it was deemed advisable to increase the capital stock to \$500,000, and it was no sooner said than done, for the stock when offered went like hot cakes. The heaviest investors were the officers above named and Mr. John N. Dennison, there being less than fifty altogether.

The factory was completed and the first product placed upon the market in August, 1882. The plant was a model one in every respect. In fact, as one of the disappointed stockholders sorrowfully remarked to an INDIA RUBBER WORLD man: "We gave them everything they asked for and offered them more. Why it was a failure is more than I can see, unless it was that more than half of those who tried to manage the establishment knew a mighty sight more about stocks, bonds, and banking than about selling, much less manufacturing, rubber goods."

The plant covered over nine acres of ground and the machinery alone cost half a million dollars. The capacity of the factory was supposed to be 17,000 of boots and shoes per day and it was intended eventually to give employment to about 1200 people. During the last year the plant was run there were used 1,472,458 yards of cloth and 3,779,655 pounds of rubber and chemicals.

For awhile everything ran smoothly. Despite the absence of dividends no great amount of dissatisfaction was expressed, as all the stockholders had confidence in the men they had placed

at the helm of the enterprise, and thought that in time everything would come out right. But the factory continued to be run at a loss and the debts continued to pile up. Still no very great amount of complaining was to be heard, and when it was decided to increase the capital stock to \$1,000,000 the money was immediately forthcoming, the number of stockholders being increased to sixty-five.

It was at the annual meeting of the stockholders in April, 1891, that the first bombshell exploded. Many of the stockholders then learned for the first time at what a terrible loss the plant was being run and also how badly the company was in debt. On June 15 another meeting of the stockholders was held, and the old board of directors unceremoniously "ousted," and the following being elected instead: William T. Hart, Alpheus H. Hardy, William Cabot Loring, Clement S. Houghton, George D. Clapp, J. Montgomery Sears, E. P. Mason, J. N. Dennison, and W. O. Grover. Mr. Hardy was elected treasurer and Mr. Hart president. The new board of directors at once shut the plant down, and the plant since that date has been idle.

It should be stated that in the meantime both President Coolidge and Treasurer Stickney had died, and the new board felt that their deaths deprived the concern of valuable experience in management and practical knowledge of the business. Then another embarrassment was felt. The firm of Houghton, Coolidge & Co., the selling agents for the Pará company, could always be depended upon to advance money. The new board found it difficult to find the money required to start up and continue to run the property. At a meeting held late in 1891 a committee was appointed to sell the property. It consisted of William T. Hart, William S. Houghton, and J. Montgomery Sears. For nearly two years they attempted in vain to sell the property. But early last spring it was disposed of to the United States Rubber Co. To this day the price paid has been a closely-guarded secret, as has been the purpose for which the United States company desired the plant.

Mr. T. P. Parsons, the treasurer of the Pará Rubber Shoe Co., informs THE INDIA RUBBER WORLD that there were, in the transaction with the United States Rubber Co. other than money considerations, the nature of which he does not feel at liberty to state. He says that something like \$1,000,000 has been sunk by his company, the plant itself originally costing nearly \$600,000. Charles H. Allen is now president of the Pará company, which is only remaining in existence long enough to wind up its affairs, there still being much machinery to dispose of, and some other business matters demanding the attention of the officers from time to time.

"Yes, I have purchased the plant at South Framingham which was formerly owned by the Pará Rubber Shoe Co.," said Colonel Pope to the writer. "I don't mind telling you what I paid for it. Just an even \$70,000, and we take such of the machinery as we shall be able to use in our business. For instance we can use the 1000-horse-power engine as well as the 22-horse-power electric-light plant, with its 900 incandescent lights. We shall commence a series of most extensive alterations and repairs on the buildings, and intend to have them ready for occupancy at least in a couple of months. We shall use the plant for the manufacture of the bicycle- and sulky-wheels for the Hickory Wheel Co., whose business we control. We are at present doing this work at Newton, but our plant there we shall wholly abandon as soon as our new quarters are ready for us."

RUBBER-MEN sell hose for air-brake purposes sometimes in lengths of 50 feet, and again they cut it to suit in 28-, 30-, and 32-inch pieces. These are capped to order, or they are expanded, a diameter of one inch being made  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ , and  $1\frac{3}{4}$  inches.

## RUBBER IMPORTS AND EXPORTS.

THE imports of crude India-rubber and Gutta-percha to the United States during eleven months past, compared with the preceding year, are officially stated as follows:

	POUNDS.		Eleven months ending May 31, 1893.	
India-rubber	2,505,639	2,542,207	38,418,197	36,989,670
Gutta-percha	53,231	42,232	534,218	263,288
Total	2,558,870	2,584,439	38,952,415	37,252,958

	VALUES.		Eleven months ending May 31, 1893.	
India-rubber	\$1,864,927	\$1,852,498	\$27,185,778	\$17,614,059
Gutta-percha	16,544	23,571	148,816	100,545
Total	\$1,881,471	\$1,876,069	\$27,334,594	\$17,714,604

The wide difference between the values of imports for the periods compared is explained in an editorial article on the subject contained in another part of this paper. For the reasons there stated it will be hardly worth while to reproduce here the comparative statement of the value of imports of crude India-rubber and Gutta-percha for several years past, as contained in the Treasury report under review.

The statistics of importations show receipts as follows of manufactures of India-rubber and Gutta-percha:

	Month ending May 31, 1893.		Eleven months ending May 31, 1892.	
India-rubber	\$26,864	\$22,327	\$303,409	\$345,673
Gutta-percha	10,858	1,333	73,774	58,452
Total	\$37,722	\$23,660	\$377,183	\$404,125

Exports of manufactures of India-rubber and Gutta-percha, by values, are thus stated:

	Month ending May 31, 1893.		Eleven months ending May 31, 1892.	
Boots and shoes	\$ 21,779	\$ 8,112	\$ 235,961	\$ 174,257
All other	118,717	115,289	1,258,141	1,146,242

Total. \$140,495 \$123,401 \$1,494,102 \$1,320,499

The number of pairs of rubber boots and shoes increased from 220,375 in the eleven months ending May 31, 1892, to 382,852 pairs in the last eleven months.

The gradual growth of our exports of manufactures of India-rubber and Gutta-percha is shown in the following comparative statement of values:

Eleven months ending May 31, 1888.	.....	\$ 805,797
Eleven months ending May 31, 1889.	.....	766,568
Eleven months ending May 31, 1890.	.....	979,509
Eleven months ending May 31, 1891	.....	1,166,657
Eleven months ending May 31, 1892	.....	1,320,499
Eleven months ending May 31, 1893.	.....	1,494,102

The exports of crude India-rubber, by quantities and values, are thus stated:

	Month ending May 31, 1893.		Eleven months ending May 31, 1892.	
Pounds	37,566	69,140	937,436	1,371,946
Value	\$235,196	\$37,350	\$546,073	\$ 737,922

The exports of crude Gutta-percha for the past eleven months were 18,483 pounds, valued at \$4103, as against 8557 pounds in the preceding year, valued at \$5170.

The exports of foreign manufactures of India-rubber and Gutta-percha for May were valued at \$130, there having been none for the same month of 1892. During eleven months past they amounted to \$12,229 in value, as against \$109 worth last year.

## MR. CONVERSE'S LATEST GIFT TO MALDEN.

THE veteran rubber-manufacturer, the Hon. E. S. Converse, of the Boston Rubber Shoe Co., has again distinguished himself by his generosity toward the town of Malden, Mass., in which he lives. He has now offered to give the town a large tract of land for park purposes, upon conditions which doubtless will be accepted. The land in question surrounds the reservoir of the great company of which Mr. Converse was the founder, and is extremely valuable for building purposes. The principal condition imposed by Mr. Converse is that the town shall gain control of one or two lots adjoining that which he proposes to give the town. Mr. Converse's first gift to Malden was a brown-stone public library building, costing something like \$75,000. This was followed up by a contribution—it is said of \$40,000 or \$50,000—when it was proposed to build a new Baptist church a few years ago. A hospital was in the process of erection a few years later, and Mr. Converse came forward with a contribution of something like \$15,000, afterward building at his own expense an addition to the main building which cost a large sum. Another gift to the town was the Pine Banks park, which is situated near the Melrose line and contains nearly 100 acres. A new Y. M. C. A. building may soon stand as another monument to the memory of Mr. Converse, for he is reported to have offered to contribute \$40,000 towards such a building if the association can furnish \$50,000. Mr. Converse's idea of a model Young Men's Christian Association building is one costing about \$90,000.

## A NEW CONSUL FOR PARA.

THE United States government is to be represented at Pará, Brazil, by a new Consul. President Cleveland, on June 29, appointed Mr. George G. Mathews, Jr., of Santos, Florida, to succeed Dr. James M. Ayers, now in charge of the consulate there. From the Jacksonville *Times-Union* it is learned that Mr. Mathews was, at the time of his appointment, railway-station and express agent at Santos—a position which he promptly resigned. The Baltimore *American* of June 30 says that the new Consul "was a strong candidate for the consulate at Rio de Janeiro. He lived a number of years in Brazil, speaks Portuguese, and is familiar with the people." The retiring Consul has been a creditable representative of the United States at Pará, and it gives THE INDIA RUBBER WORLD pleasure to acknowledge the courtesies received at his hands.

## THE RUBBER-THREAD COMPANIES.

THE annual meeting of the Easthampton Rubber Thread Co. was held at Easthampton, Mass., on June 20. A dividend of 6 per cent. was declared. E. Thomas Sawyer was reelected president and general manager, and F. W. Pitcher, treasurer and clerk. The remaining directors are L. S. Stowe, William G. Bassett, and F. T. Ryder.

The Glendale Elastic Fabrics Co., of Easthampton, held their annual meeting on the same date. The directorate includes Samuel T. Seelye (president), Joseph W. Green, Jr. (treasurer and manager), and E. Thomas Sawyer and John Magher—all of Easthampton; E. D. Candee, New York; Sumner Wallace, Rochester, N. H.; and W. H. Burrows, Middletown, Conn. It was the sense of the meeting that the new system of machinery for producing gorings would be a great success.

PNEUMATIC tires have lately been used on the Pacific mail steamers for smuggling opium.

## OLD RUBBER FOR THREE CENTS.

[FROM THE BOSTON COMMERCIAL BULLETIN.]

THE large consumers of old rubber seem to be making a determined effort to get the price of that commodity down to 3 cents. From past experience they cannot hope to get it lower, without its reacting to a higher point, or in case consumers were strong enough to maintain the price below 3 cents, it would in time tend to curtail the gathering of rubbers throughout the country. This theory is held by one of the best authorities in the trade, though there are those who think it an erroneous belief, and point to the example of domestic cotton rags, which after the duty was removed dropped in price materially, but are just as plentiful as ever. It cannot be denied, however, that the higher the price the more the collection of old rubber boots and shoes is stimulated as special effort is made to gather them in out-of-the-way places which would be neglected under other conditions.

It is quite safe to fix the price at 3 cents, because it does not interfere with collections which are never too large for the market. The success of this price has been well tested. For about 21 months ending with the commencement of this year, the large consumers of this country made an agreement to maintain this price and the result, so manufacturers say, has been beneficial. Profits were very satisfactory and it was easy to figure the cost of manufacture on which the selling price of goods could be easily based.

Whether or no this price can be again permanently established by the large grinders of old rubber remains to be seen. Unless there is that unison so noticeable among the grinders last year, it is doubtful if that price can be held any length of time. The market was agitated considerably early in the year by one party who was really instrumental in putting the price up from 3 cents to 4½ cents in about nine weeks.

The market has not recovered from the flurry since and although rubber is being bought at 3½ cents, there are strong holders in the West who have kept their ideas high since the boom. Those who want to see a 3 cent market have several things in their favor however. One is the increasing collections and another the heavy stocks they are carrying. Local grinders are probably not as well stocked as those of New York and vicinity, but on the whole the amount carried by them is very fair.

## THE SINGER EXHIBITS AT THE FAIR.

THE Singer Manufacturing Co. are well represented at the World's Columbian Exposition. Finding it impossible to get sufficient space to display all of their machines in any one place, they were compelled to divide their machines up into four different exhibits. The exhibit of family sewing machines in the north end of the gallery in the Manufactures and Liberal Arts building, Section G, Block 2, is one of the handsomest buildings to be found on the grounds. It is finished with stero-relief work in cream and gold, is two stories high, contains 4032 square feet of floor space, and has five rooms besides the large 20-feet-wide entrance hall on the ground floor. One room will be devoted to the different styles of family sewing machines. Another will be a workroom devoted to illustrating the different kinds of work done on the sewing machine by operators. Another will perfectly and exactly illustrate a dining-room in the time of Henry VIII. Another a modern reception-room, and another a modern bed-chamber.

The next largest exhibit is in Machinery Hall Annex, Sec-

tion 32, Column P, 45, 46 and 47; contains 2176 square feet of floor space, has 136 machines on power tables and 58 machines on a pyramid built at the back part of this, or 194 machines in all, and no one a duplication of another.

The third exhibit in size is in the gallery of the Leather and Shoe Trades building, center of west gallery, contains 2016 square feet of floor space and shows 60 machines running on power tables that are used exclusively in leather manufacture. The fourth exhibit is in the model shoe shop in the Leather and Shoe Trades building, where The Singer Manufacturing Co. take up 840 square feet of floor space and show 29 machines running. In this shoe factory only four out of their 23 ornamental-stitch machines are shown, as the space allotted them was not sufficient to show any more.

## RUBBER CARRIAGE-TIRES IN DEMAND.

UPTOWN carriage-manufacturers in New York note an encouraging demand for vehicles equipped with the pneumatic tire, a proof of which is in the fact that a short name has already been given to them, the significant "bike."

One concern turned out early in the season a round-about equipped with the tire, and shortly afterwards they received orders for fourteen more. For obvious reasons the carriage business at first hands is very dull, second-hand rigs flooding the trade, and the demand is very limited for all descriptions of new goods. The bicycle-sulky did not obtain until August of last year, so this is really the first season for "bikes." Race-tracks have hardly got into running order yet, so no new triumphs are recorded as to an improvement in time on them which so surprised horsemen last year. It will be remembered that then the fast nags reduced their records about five seconds. Champion records were then reduced within four months to a greater extent than ever known before.

## THE REVOLUTION IN BRAZIL.

AS THE INDIA RUBBER WORLD goes to press the newspapers contain reports of civil war in Brazil. Bulletins were issued on July 11 by the various cable companies in New York having connection with Brazil, suspending the employment of secret language for telegrams, but admitting messages in plain language not bearing upon political movements. The prohibition of code messages means an increased expense to the crude-rubber trade, as the cost per word for cabling to Pará is very heavy. The New York *Sun* in its account of the situation remarks:

The people in Wall street smile at the reports of the revolution in Brazil. It looks to them as if a number of important people were long of rubber stocks. The sentiment of Wall street yesterday was that it was purely a "rubber revolution."

It may be mentioned that the republic of Brazil covers such an immense area that the States reported in a condition of revolt are too far removed from the rubber-producing district for their action to have any effect upon the rubber trade.

THE Sinclair Rubber Co. (New York) are so enlarging their trade in rubber plugs for wash-basins, that it is difficult to keep pace with orders. Naturally the metal plug, being non-elastic, is not to be compared with rubber, and the tendency of the latter to drive the former out of the market is in the course of events, and the Sinclair people are profiting thereby. It is made in five different sizes.

## NEW GOODS AND SPECIALTIES.

A YEAR ago THE INDIA RUBBER WORLD illustrated what was known as the "Babies' Delight, No. 5," also bearing the effective title of "Children's pacifier." This was a hollow teething-ring, with a nipple and shield attached, the whole being made of a fine grade of rubber. An improvement on this idea is brought out by this same concern, which they call the "Babies' Delight, No. 10." This has in addition to the



nipple shield and teething-ring, a teething-pad, the whole being molded in one piece, and is so well shown in the accompanying illustration that it really needs no further description. The druggists are already purchasing these in large quantities, and it is to-day one of the best sellers in the sundries trade. Manufactured by the Davol Rubber Co., Providence, R. I.

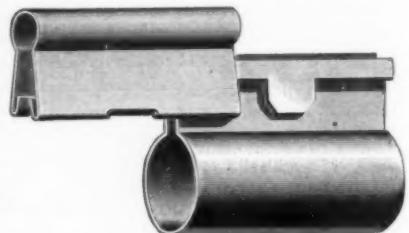
## THE PUTNAM LADIES' MACKINTOSH.



AN exceedingly beautiful garment that is absolutely new this season is shown in the accompanying illustration. It is fitted with three capes, two of them short while the third is thirty inches long and lined with silk. These capes are so arranged that they are detachable from the rest of the garment and being of elegant material and silk lined, can be worn as an outer wrap for driving. They really have every effect of the stylish cape garments that are now so popular. The manufacturers of these goods have been singularly successful in producing an elegant garment which gives no hint of it being a mackintosh. This fact has been appreciated by the most critical, and large orders are already placed with the leading cloak-houses of the country. It is intended in these garments that they shall be made of the handsomest goods in the market, have the finest finish possible, and be in every way stylish and graceful. Manufactured by the Clifton Manufacturing Co., Boston, Mass.

## THE CARHART AERIAL CABLE-CLIP.

A CLIP that is being used very extensively in supporting cables above ground is shown in the illustration. A description of it is hardly necessary, as the cut tells exactly what it is used for and how it is applied. It is probably the only cheap and effective clip in the market and has already been adopted by the leading electric companies. It is made of the best galvanized iron, or may be of plain iron japanned. It will fit any size of cable. Manufactured by E. M. Carhart, No. 18 Custom House street, Providence, R. I.



## A BOOT FROM THE LUMBER REGIONS.

THE felt boot is so largely used to-day that it is really becoming an integral part of the rubber-trade; indeed, in connection with lumbermen's overs, through the west and northwest, it has become the popular boot. The process of manufacturing these boots has already been described in THE INDIA RUBBER WORLD, and it is so simple that it is hardly worth a repetition. One of the largest concerns making these goods sends us an electrotype this month showing their wool boot and mentioning the fact that their annual capacity in turning out these goods is 50,000 cases.



They guarantee the goods to be first-class and as they have just completed a large new factory are in position to fill all orders promptly, and are now taking orders for large quantities. Manufactured by the Grand Rapids Felt Boot Co., Grand Rapids, Mich.

## THE MARVEL RUBBER SHOE.

THE trade-mark of the Marvel Rubber Co. is so unique and so artistic that we have asked them to send us an electrotype of it to be reproduced in THE INDIA RUBBER WORLD. In connection with this trade-mark, Manager William B. Banigan sends seven reasons why the "Marvel" shoe is so far ahead of other rubber shoes: (1) They are the neatest, prettiest, most stylish of any rubber shoe made; (2) they are the most perfect fitting, and easiest on the foot; (3) they never slip off at the heel; (4) they are better made, and made of better material than any other shoe in the world;



(5) they have no cloth lining to get dirty, or chafe the boot over which they are worn; (6) should they get dirty, they can be washed out, and made as clean as new; (7) they are cheaper because they will outwear two pairs of any other make of rubber shoe.

#### A NEW RUBBER AND LEATHER BOOT.

THE illustration appended shows a new boot which is a combination of leather and rubber and which is already attracting much attention in the market. It is made by placing a leather insole on a last in the ordinary manner and covering it with rubber cement. The foot of a rubber boot leg is then stretched around the insole and made to adhere to the cement. After this it is levelled with a filling of felt and the vamp is next brought into position and held there by rubber cement. A canvas sole is placed over all and the insole is evened up with the foot in the vamp. The boot is then placed in a vulcanizer, where all the parts are thoroughly cured. It is then removed,

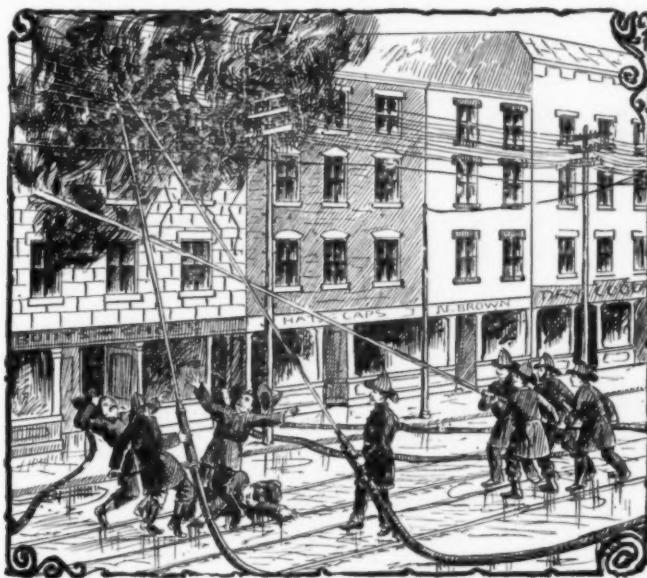
many times to the efficiency of the fire service. Far superior streams are obtained and at the same the nozzle is self-balanced under any pressure that can be applied. The insulated handles and patent grounding device absolutely insures the safety of the pipe-man from electric shocks, something that has been greatly needed the last few years in fighting fires. Further than this it adds greatly to the sure working of all makes of shut off nozzles, and the pipe-man always has one hand free for its operation no matter what amount of water may be used. This new plan is successful for inside work and in addition to this has revolutionized the service in the Deluge Sets in making large streams practicable and easily handled. A complete Deluge Set is light and compact taking up a space only six by twenty inches, so it is therefore very easily taken to any fire. It is believed to be the only plan ever devised for large streams that goes with every connection made, and requires no more time to put in operation than the ordinary stream. The streams provided by it may be of the following sizes  $1\frac{1}{2}$ ,  $1\frac{3}{4}$ ,  $1\frac{1}{4}$  and 2 inches, or very much larger if so desired. In tests recently made large



the bottom of the sole covered with cement and the top sole put on and fastened with wire nails which pass through the insole. If desired the top sole can be fastened either by sewing or pegging. The heel is attached in the same manner and a steel shank is often put in to keep the boots in good shape. The boots are exceedingly handsome and very durable. Aside from this they are the most comfortable boots that can be worn, as it is impossible for them to draw the feet. A great many of them are already in use as sporting boots, and they are especially adapted to the wants of farmers, civil engineers, and contractors. Manufactured by the Woonsocket Rubber Co., Providence, R. I.

#### A HELP TO THE FIREMEN.

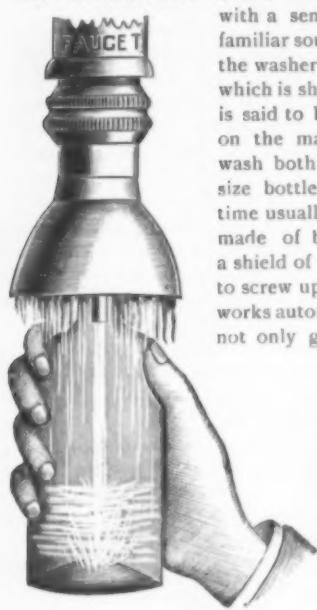
ONE of the most important inventions in fire tools for many years is the recent combination of the Perfection holders. It is conceded generally among firemen that their adoption adds



streams of solid water have been thrown a distance of 200 feet from the nozzle from a hydrant with only 70 pounds pressure. The advantage of a compact stream thrown such a distance cannot be overestimated. The manufacturers agree to produce a stream at least twenty per cent. better than any other in existence with their patent producer, the stream leaving the nozzle in a straight and solid body. The center current which travels faster is kept intact, which as it leaves the nozzle attracts and draws the whole column of water together, delivering the stream solid to the end. The holder can be used on a ladder just as well as on the ground, and when there hung gives the pipe-man a good opportunity to direct the stream, either right and left, up or down as he desires. When fighting a fire in a cellar the holder makes a fine cellar pipe as the extension gives a leverage so that after the nozzle and holder are thrust through the window, the pipe-man can direct the stream to any part of the cellar and his hands will not come in contact with glass. This gives an entirely new way of handling a fire of this kind and has been admitted by firemen to be of the most practical advantage. Manufactured by Samuel Eastman & Co., East Concord, N. H.

## THE DIAMOND BOTTLE-WASHER.

THE manufacturers of this washer introduce their circular with a sentence that has a singularly familiar sound: "You press the bottle, the washer does the rest." This washer which is shown in use in the illustration is said to be the only article ever put on the market that will thoroughly wash both the inside and out of any size bottle and do it in one-half the time usually consumed. The washer is made of brass, heavily nickelated, with a shield of soft rubber. It is arranged to screw upon a faucet and once there works automatically. The rubber shield not only guides the water so that it cleanses the bottle both outside and inside, but it guards against breakage of the bottle in the hurry of washing. It is simple in construction, impossible to get out of order and can be attached to any faucet. Manufactured by Fox, Fultz & Webster, Boston, Mass.



## RUBBER NOVELTIES IN STATIONERY.

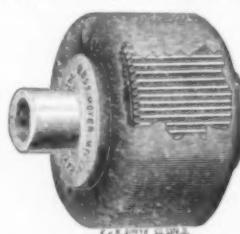
THE latest novelties in pen-holders, in which rubber is employed, comprise one made of a natural wood cedar stick with a corrugated soft rubber sleeve and a Bonin nib. This penholder is specially adapted to nervous people, as the corrugated sleeve allows of a firm grasp, and prevents slipping, thus tending to a steady hand. It also obviates a certain amount of fatigue to those who have much writing to do. Its sale has speedily risen to large proportions. Another device consists in having a swinging cap attached to pencils with rubber tips. This cap covers, when not in use, the eraser and keeps it clean, a decided improvement when one considers the appearance of the rubber when carried in the pocket for a few days, to say nothing of the tendency it has to soil the paper in its application. Penholders now have rubber ink-erasers attached to them.

Mucilage holders are now made in the form of a bulb and out of rubber. At one end is a metal cap used in filling the bulb and at the other is a small metal tube in which is inserted a brush made of felt. This brush screws into the tube and thus can be readily removed when worn out. When not in use the bulb sets in a glass stand, the sides of the bulb in the slight pressure on the stand keeping the receptacle air tight. When to be used a slight pressure on the bulb causes the mucilage to flow to the brush and its use is then identical with the ordinary brush.

## ROSS CORRUGATED RUBBER WHEELS.

THE manufacture of leather shoes calls for various machines for almost every separate process. Heretofore the felt wheel has been used for applying the blacking to the heels, hanks, top-lifts, and for black bottoms. A decided improvement over the felt wheel, which is apt to pack with blacking and lose its shape, is the corrugated rubber wheel shown in the accompanying illustrations. These wheels hold the covers in their original position and prevent slipping, thus adding largely to the life of the cover. They do the work quicker, much better, and with

less friction, requiring far less pressure to produce better results. They are the most durable wheels yet offered for blacking purposes. These wheels are fitted for a five foot steel shaft



and the length of the upper shaft and number of wheels and brushes can easily be changed. For ordinary work, four different sizes of wheels are used,—one seven inches in diameter, which is used for shanks, one five to six inches diameter to heels, one

five inches diameter, three and one half inches wide for use on bottoms and top-lifts, and one four inches in diameter to be used on breast of heels. Manufactured by Ross-Moyer Manufacturing Co., Cincinnati, Ohio.

## MINOR MENTION.

A SMALL skeleton vulcanite wheel as a knife-sharpener and tool-grinder has recently been brought out. It is intended for the use of gardeners and mechanics, and also easily fitted for farm use. It is extremely light and compact, being 8x12x4 inches, and weighing only six pounds. Manufactured by Benedict & Co., Buffalo, N. Y.

—A patent grip hose-band is one that is attracting considerable attention. It is made of double-band brass wire jointed in the middle so that it is not necessary to bend the wire around the hose, as it comes immediately into position. No special appliance is required for it, as anything whereby a pry can be obtained will fasten it. It is very simple and practical. Manufactured by John H. Crisp, Trenton, N. J.

—Quite a demand for single-neck rubber bulbs is found in gasoline torches and gas-burners. These gasoline torches are used for burning off paint, while a smaller one is made for electricians' use. Each of these are dependent upon a rubber bulb which furnishes air, making the torch burn on the blow-pipe principle. These torches are manufactured by C. A. Gefroer, No. 248 North Eighth street, Philadelphia.

—A rubber apron one yard long and one yard wide at the bottom is having quite a sale among dentists. It is used either by the operator or patient, and is found very useful in anesthetics, in taking impressions, or cleaning teeth. It has also been found just the thing for laboratory work. Manufactured by Samuel A. Crocker & Co., Cincinnati.

## TRADE AND PERSONAL NOTES.

PROBABLY the most profitable rubber plant in the world to-day is that run in St. Petersburg by the Russian-American Rubber Co. It is practically a monopoly, and as they are allowed to pay no more than a 50 per-cent. dividend, and as the profits are large, they have put their surplus into fine buildings and improved machinery until they have a magnificent plant. Aside from this they have a personal care for their help. The women who work in the factory who happen to be mothers can take their children in the morning to a sort of day nursery and feel that they have the best of care during the day. The men have fuel for their homes free, and if any of them are ill, a doctor is in constant attendance at the expense of the company.

—Arthur F. Leonard of the Franklin Rubber Works, Boston, owned by Fuller, Leonard & Small, retired from the partnership on the last day of June, Messrs. Fuller and Small continuing the business under the old name. Mr. Leonard has been for many years a well-known rubber-man having been with Alfred Hale for a number of years and later with Worthley, Downes & Co. He is a man who made a great many friends in the rubber trade and was known far and wide as a man of singular uprightness and rectitude in all business affairs. He has been connected with the rubber trade about twenty-seven years and now retires to a large farm owned by himself in the town of Millis, Mass. In the words of a well-known rubber-man, Mr. Leonard now sings:

"I am monarch of all I survey,  
My right there is none to dispute;  
From Millis way down to Medway.  
I am lord of the fowl and the brute."

—An English manufacturer says that if the domestic maker, when he wishes to cheapen his rubber clothing, would let poor woolens alone, and turn his attention to good cottons, he would find the results more satisfactory.

—A test of a good mackintosh is to take it and hold a portion of it to the mouth, moistening it with saliva and blowing the same in an attempt to wet the inner surface. Sometimes globules of water will come through, or the inner surface will then become damp, which is not a characteristic of India-rubber.

—The Metropolitan Rubber Co. (New York) report that their product, which was contracted for some time ago, is sold three months ahead.

—The India Rubber Glove Manufacturing Co. report a gratifying number of "details," a good sale of clothing, and collections very fair.

—Clothing dealers with Baltimore connections report a fair and growing trade with the South this season.

—Mechanical-goods men report quite a demand for couch-rollers and paper-mill sundries from concerns in the northern part of New York State.

—The probability is that College place, New York, will not be disturbed by the city authorities this year, and the only rubber factory in lower New York will do business at the old stand for at least twelve months to come.

—The City Council of Montrose, Pa., is reported as having purchased from the Gutta-Percha and Rubber Manufacturing Co., 600 feet of fire-hose, medium Ajax brand, cotton, rubber-lined,  $2\frac{1}{2}$  inches internal diameter, to stand pressure test of 300 pounds to the square inch, sellers to give a guarantee against mildew or rot for three years, screw couplings complete, delivered on cars at Montrose for 60 cents per foot.

—The Commonwealth Rubber Co. (New York) fortunately closed a good many contracts for hose last fall, so their factory has been unusually busy this season; a condition not general with all the factories so far as that single article is concerned.

—The Wabash railroad gives notice that it has adopted the air-brake on all its passenger, sleeping, and private coaches, and that after July 15 it will not haul the cars of any roads not so equipped.

—J. M. Johnson, who supplies the good people of Olean and Jamestown, N. Y., with their rubber footgear, was in New York recently giving orders for the fall stock. Mr. Johnson reports trade good in his section and predicts the usual sale of goods during the coming season.

—The new machine-shop of the Coe Brass Manufacturing Co. (Torrington, Conn.), will be 40x300 feet long, and two stories high. The building is designed and built by the Berlin Iron Bridge Co. (East Berlin, Conn.), and will be covered with their patent anti-condensation corrugated iron roofing.

—The Gleason & Bailey Manufacturing Co. (Seneca Falls, N. Y.), are building a handsome steel frame four-wheel hose-wagon for Navasota, Texas. The same company were successful bidders in the recent competition for furnishing two large-size steel hook-and-ladder trucks to the fire department of New York city.

—The removal of the New York offices of the United States Rubber Co. from William street to Nos. 88-90 Reade street, took place on July 1. The company are now well located in the commercial, rather than the financial, part of the city, and so far as spacious quarters go, are well equipped for the transaction of business with the public. The lower floor embraces the spacious store of Nos. 88-90 Reade street. Immediately above are the quarters of the bookkeepers. Over that portion of the building occupied by the New York Rubber Co. on the Church street corner are the executive offices of the company,—which comprise a room for the president and directors,—and the several sub-divisions to be occupied by the working officers of the several companies in the organization, the sales-agents and the manager of factories. These last-mentioned rooms are not yet out of the carpenters' hands and will not be for some time. The furnishings and fittings so far bid fair to present a neat and substantial appearance, and in keeping with the substantial character of the company.

—Lyman H. Dodge, a dealer in rubber stamps and stationers' supplies, in Cleveland, Ohio, has assigned to A. A. Stearns for the benefit of his creditors.

—The new factory which is being constructed by the Good-year's Metallic Rubber Shoe Co. [Wales-Goodyear] at Naugatuck, Conn., according to the local newspapers, is being pushed rapidly, but will scarcely be completed before December. When completed, according to the same authorities, it will be one of the finest rubber factories in the country. A recent report was that 200 men were employed on the works. The factory is one mile below Naugatuck, on what is called Ward's plains.

—J. Francis Hayward, treasurer of the Cable Rubber Co. (Boston), tells with great gusto of a customer who came into a rubber store in Boston and asked for a cheap boy's life-preserver, and who was asked by the clerk in a demure tone if he possessed a cheap boy.

—D. M. Baldwin, proprietor of the well-known Goodyear rubber store on Main street, Hartford, Conn., has an attractive window display, and at the door a pyramid of garden-hose which acts as a most effective advertisement.

—In one of the courts at Denver, Col., the Manhattan Rubber Shoe Co. (Setauket, L. I.) obtained judgment by default against L. L. Stark & Co. for \$364.10.

—The Rhode Island Coupling and Rubber Co. (Providence) are having a great deal of trade in their line of steam-hose which is made up with much care especially for steam work. The quality is said to be excellent for the price and the price very low. The brands are "Westminster," "Blackstone," and "Narragansett."

—Messrs. Leach & Green, manufacturers and dealers in surgical instruments, a Boston concern well known in the rubber trade, have removed from Tremont street into a new and finely-appointed store at Park square.

—Mrs. Charles T. Wood, who has opened a rubber store at No. 297 Tremont street, has shown genuine feminine taste in fitting up the place. In the front of the store is a handsome show-window with a variety of rubber goods displayed that presents a very attractive appearance. As one enters the store they find it nicely carpeted, with handsome show-cases in which are displayed such goods as are deemed salable in this vicinity, and in the rear is a space for fitting rubber garments in the sale of which and in improvements on existing styles, Mrs. Wood has been exceedingly successful. The store is not a large one, but is neat, well appointed, and complete in every particular.

—It is stated that the sales of the Pearl corset-shield for the first two months of this year were equal to all of last year, and for the past five months they have been double the number for all of 1892,—a glowing tribute to the popularity of the new idea. The sale of dress-shields by the Mattson Rubber Co. keeps up with the best of former years.

—The Day Rubber Co., of St. Louis, have filed a notice of increase of capital stock from \$25,000 to \$100,000.

—The London Rubber Works (Ashtabula, Ohio) closed on the night of June 30th, for one week, to permit the firm to take an inventory of stock.

—The Tuttle Rubber Works (Holyoke, Mass.) were the scene of a small fire early in the month. It was speedily stopped by a chemical fire-extinguisher.

—The Colchester Rubber Co. closed their factory for a single day, July 4. Some of the employés had expected a stoppage of a week, but owing to a rush of orders the company could not stop the works longer.

—The works of the L. Candee & Co. (New Haven) closed on July 1 for two weeks, giving their 2300 employés a much needed rest.

—The Goodyear's Metallic Rubber Shoe Co. (Naugatuck, Conn.) posted notices on June 28 announcing that their old factory would close on July 1, for an indefinite period, and the new factory for two weeks or more.

—There was a fire in the Star Rubber Works (Trenton, N. J.) on the night of June 27, causing a loss reported at a little over \$1000.

—W. W. Walls, of Sandusky, Ohio, is reported as enlarging his store on Water street, so as to double the capacity of his wholesale rubber business.

—The Marvel Rubber Co. (Woonsocket, R. I.), makers of the molded rubber shoe, are turning out 750 pairs a day, and have orders far in excess of that amount.

—The Commonwealth Rubber Co. (No. 54 Vesey street, New York) have issued a very attractive circular showing mackintosh goods and bicycle goods and indexing a host of goods that they sell both at wholesale and retail.

—The Hoyt Rubber Co. (Boston), are doing quite a business in tips for door-fenders. They estimate that they made 40,000,000 of them last year.

—Few concerns who supply goods to the manufacturers enjoy the enviable reputation that the E. H. Clapp Rubber Co. (Boston) enjoys. This is due not only to the quality of the goods they make but it is to their unvarying reputation for square dealing. The late E. H. Clapp was an exceedingly positive man, a fighter if any one tried to defraud him, but a man of inflexible uprightness, who would do exactly what he said he would no matter what the consequences were. His brother Arthur, the present head of this firm, is of the same stamp. As a result the Co. have a list of customers among the rubber manufacturers that have stood right with them from year to year. A unusual thing in this business relation is that some of the largest companies are supplied year after year with hundreds of thousands of dollars worth of stock, and yet the whole business is done without any written contract and with absolutely no misunderstandings.

—The Berlin Iron Bridge Co. (East Berlin, Conn.) have received from E. D. Leavitt, consulting engineer of the Calumet & Hecla Mining Co., a contract for the iron roof over their new engine-house. The building will be 80 feet wide and 200 feet long.

—The Goodyear's India Rubber Glove Co. (Naugatuck, Conn.) have just added to their plant a brick building 190x40 feet, three stories in height, for boots and shoes. They have also lately put in a George P. Corliss engine,—600 horse-power,—and two Corliss boilers.

—Superintendent Robert Cowan, of the Boston Woven Hose and Rubber Co., has in his factory four boys from the Manual Training School in Cambridge, and testifies that they are among the brightest and most promising of any of his helpers.

—The Boston office of the Woonsocket Rubber Co. has been removed to No. 128 Bedford street, to the Shoe Exchange building, in the same locality with the other offices of the United States Rubber Co.

—The Boston Rubber Shoe Co. will build a brick addition to their factory at Malden, Mass., to be used for a boiler-room. The estimated cost is \$4000.

—A change in the charter of the Toronto Rubber Co. makes the style of the corporation the Toronto Rubber Shoe Manufacturing Co. John H. Taylor is giving the affairs of the company his personal attention, and several new improvements in the mill have been made. They are turning out excellent goods, which seem to meet the wants of the trade in the Dominion.

—For the coming season the styles of mackintoshes will include the "Bannockburn" effects, which had so large a run ten years ago. There will also be cheviots in light blue shades, as well as white-spot effects.

—The Pennsylvania Railroad company are busily engaged in equipping their rolling-stock with air brakes, at a cost of \$55 per car. So far they have placed the brake on 21,971 cars east of Pittsburgh, and 47,503 west of that city. This is about one-third of the total.

—The incorporation is reported of the Illinois Rubber Co. at Chicago, with a capital stock of \$25,000. The incorporators are Louis Hitchings, Ira C. Wood, and Howard Carter.

—Thursday has been made the pay-day of the Woonsocket Rubber Co.'s mill at Millville, instead of Friday, as heretofore.

—August W. Schmitt and Emil F. Wagner, composing the firm of A. W. Schmitt & Co., dealers in rubber-stamp supplies, at No. 22 Vesey street, New York, have made an assignment to Frederick W. Lohr. Mr. Schmitt started the business in October, 1888. It is said that he had contracts for supplying stamps to the Post-Office department. The failure is attributed to losses through the failures of others.

## RUBBER SALESMEN.

S. H. MILDENBERG, well known in the ladies' rubber-cloak line, is taking the territory of New York, Philadelphia, Baltimore, and Washington for the Columbia Rubber Co. (Boston). Some of Mr. Mildenberg's samples with silk linings are very handsome.

—Gilbert Congdon is back in Cleveland, Ohio, after a six-weeks' maiden trip in the west for the Cleveland Rubber Co. Mr. Congdon reports a very fair trade, considering the present condition of the country, which is not one to inspire buyers with courage.

—M. Preiss, formerly with Straus, Rinehard & Co., Richmond, Va., but now representing the Williams Rubber Co., New York, is well known in the south and southwest, where he has also represented the Chesapeake Rubber Co.

—J. Francis Hayward has been seen recently in New York and Philadelphia, where he was welcomed by many old friends who were glad to see the well-known treasurer of the Cable Rubber Co., of Boston.

—Messrs. Stephenson, Hamilton, Burley, and Jenkins, the Chicago representatives of the Mandelburg, Apsley, Boston, and Hodgman Rubber companies, are meeting many brothers of their own profession, from the east, who are paying the World's Fair a visit. It is needless to say that the above quartette are showing them every attention.

—The Ideal Rubber Co. have an active and well-posted salesman in druggists' sundries in their manager, Mr. A. C. Eggers, who has made some good accounts for the house.

—L. Bryant Hill, formerly with Boyd, Jones & Co., in their mechanical-rubber department, is now with the Patapsco Rubber Co. in the same position, pushing the products of the New York Belting and Packing Co. Mr. Hill is one of the best known city salesmen in mechanical-rubber goods in the city of Baltimore.

—The Hodgman mackintoshes, so well known in the big cities of New York State, have been wonderfully well handled by their representative for that territory, Mr. A. W. Wilson. Friends of Mr. Wilson say that he can pick a banjo as well as the best trade.

—The full road force of the Metropolitan Rubber Co. (New York) are busy getting ready for an expected big fall season. This company, like all the others, is very busy on early orders.

—Manager T. N. Conrad has secured the services of W. H. Daffron, who will represent the Patapsco Rubber Co. in the south. Mr. Daffron hails from Richmond, Va., and was formerly in the office of the Southern Rubber Co. of that city.

—E. J. George, buyer for S. A. Maxwell & Co., Chicago, is now one of the western representatives of the Davol Rubber Co. (Providence, R. I.)

—D. A. Hawkins has returned from his trip through Long Island, and reports large business in fall orders of clothing and boots and shoes. He will shortly go through the State of New Jersey, where he is well known, and expects to book large fall business.

—C. H. Bishop, who represents the American Rubber Co. and William Morse & Co. in Philadelphia, Baltimore, Washington, Pittsburgh, and Wheeling, has returned and reports business in clothing good. He booked fall orders from all the principal jobbers. He will shortly go over his territory, and expects to continue doing business, as he is well known over this section of the country, and has many friends.

—Hiram Bloom, representing the American Rubber Co. and William Morse & Co. (New York) has returned from his trip through New York State. He found business good and was suc-

cessful in booking large orders on boots and shoes for the fall. He will, for the present, look after his large acquaintance in the boot and shoe trade in the city.

—W. F. Stearns and George E. Vanderbilt (representing William Morse & Co.) are in Chicago visiting the World's Fair.

—John Conly, who represents William Morse & Co., will shortly visit his trade in boots and shoes in Philadelphia and the State of Ohio.

—W. P. Cowell, of the Buffalo Rubber Co., started out for fall business on July 5, through Ohio.

—W. H. Barr, of the Buffalo Rubber Co., is looking up fall orders in western New York.

## INDIVIDUAL MENTION.

THE New York *Herald*, in a recent issue, devotes half a page to portraits of "Some Crack Polo-players of To-day," prominent among whom is Mr. J. D. Cheever, of the Rockaway club. In the business world Mr. Cheever is known from his long connection with the success of the New York Belting and Packing Co., and also as the secretary of the newly-formed Mechanical Rubber Co. Another enthusiastic polo-player shown in the same group is Mr. Aug. Belmont, of the Meadow Brook club. While not so closely identified with the rubber industry as Mr. Cheever, Mr. Belmont's position as treasurer of the Mechanical Rubber Co. entitles him to be ranked among the prominent rubber-men of the day.

—The Hon. L. D. Apsley, president of the Apsley Rubber Co., has recently purchased the Williams farm on Packard street, in Hudson, and has begun the work of improving it with a view to making it his residence. It is one of the most pleasantly situated farms in that town.

—Mr. N. Lincoln Greene joined the ranks of bachelors on June 28, at Roxberry, Mass. The happy bride was Miss Lila F. Beale. Mr. Greene was for a long time with the Pará Rubber Shoe Co., and is now with the Boston Rubber Co., in their boot and shoe department.

—Mr. Fred Hall Jones, of the Tyer Rubber Co. (Boston), was married on June 20 to Miss Tyler, of Tylerville, Conn. Mr. and Mrs. Jones have taken a cottage at Winthrop, Mass., for the summer.

—Mr. Joseph T. King, of the Hodgman Rubber Co.'s Broadway (New York) stores, and Miss Alice A. Gilbride, daughter of Mr. Michael Gilbride, an old resident of the West End, Boston, were married at St. Mary's church, in the latter city, on the morning of June 21. Mr. Michael B. Gilbride was best man and Miss Kittie King, sister of the groom, was maid of honor. Among the wedding guests were many rubber-men, including all the employés of the Hodgman company's Boston store. Mr. and Mrs. King will reside at Bay Ridge, L. I., for the summer.

—Mr. William Morse and wife, of New York, the former the agent for the American Rubber Co., were recent visitors to the Fair.

—Mr. C. H. Dale, sales-agent of the Peerless Rubber Manufacturing Co. (New York), has been spending some time in Chicago, his attention being about equally divided between the World's Fair and the trade.

—The Princess Eulalia, during her visit to New York, was a liberal purchaser from the leading stores, and carried home with her a great variety of products of American taste and skill. The newspapers mention that she bought "a trunkful of toys," including rubber balls and squealing dogs.

—At the reception to Cardinal Gibbons given by Mr. Joseph Banigan, president of the United States Rubber Co., at his residence on Angel street, in Providence, on the evening of

July 3, the illumination was of the most elaborate character. The different colors displayed by the electricians in the lighting of the grounds with their constant changes, and the exhibition of the coat of arms of the Cardinal in the cupola, were works of art and skill never before so fully seen in Providence. A dinner with eighteen covers was not the least interesting feature of the occasion.

### REVIEW OF THE RUBBER MARKETS.

THE crude rubber market is exceedingly quiet, and the situation is on a parity with everything else that at present is dependent upon the financial world for its sustenance. The manufacturers in an ordinary view of the case would be in need of rubber, but they hesitate to purchase except in a retail way, fearing to manufacture largely. Statistically the position is strong. The world's visible supply of rubber is 2210 tons of Pará, and while it was less last year, the invisible was much larger than it is believed to be now, and stocks are really much smaller now. Fine rubber has recently sold at 65 cents and coarse at 40 for Island. Spot rubber is held very firmly, ranging from 72 to 76 cents, according to age. Recent sales have been made at 76 cents for small lots one year old. Receipts have been small, only three steamers from Pará having arrived since our last report. Afloat for New York are the *Lisbonense*, with 140 tons; the *Basil*, with 60 tons, and the *Capua*, with 40 tons, or a total for New York of 240 tons. For Europe, a steamer the name of which is not given sailed from Pará on July 4 with 260 tons Pará and 30 tons caucho.

Affairs in Brazil are in one of those periodical states of disquietude so peculiar to the American of southern latitudes. Exchange is at 11d.

The world's visible supply of Pará rubber on June 30, 1893, compared with a date one month before, and one year before, was as follows, amounts being stated in tons :

	June 30, 1892.	June 30, 1893.	May 31, 1893.
United States.....	479	970	1050
England.....	817	615	752
Pará.....	210	375	270
Afloat.....	316	250	765
Total.....	1822	2210	2837

On June 30, 1893, there were in addition 153 tons caucho, 113 tons being in New York and 40 in Pará. A year ago there were 270 tons caucho.

The statistical position of Pará rubber in New York is thus reported for June, 1893, as compared with the same month in preceding years :

Stock of Pará here, May 31,	about	3,100,000 pounds.
Receipts June	"	1,625,000 pounds.
Deliveries June	"	1,725,000 pounds.
Stock June 30, 1893,	"	3,000,000 pounds.
Stock June 30, 1892,	"	1,000,000 pounds.
Stock June 30, 1891,	"	3,300,000 pounds.

#### PRICES FOR JUNE.

	1893.	1892.	1891.
	Fine. Coarse.	Fine. Coarse.	Fine. Coarse.
First.....	74 48	68 46	87 57
Highest.....	74 48	69 47	87 57
Lowest.....	67 43	68 46	81 52
Last.....	67 43	68 46	81 52

The latest quotations in the New York market are :

Pará, fine, new.....	65@67	Sierra Leone.....	25@42
Pará, fine, old.....	71@73	Benguela.....	40@47
Pará, coarse, new.....	41@50	Kongo Ball.....	36@42
Pará, coarse, old.....	—	Small Ball.....	33@36
Caucho (Peruvian) strip.....	45@46	Flake, Lump and Ord.	26@28
Caucho (Peruvian) ball.....	50@51	Mozambique, red ball.....	—
Mangabeira, sheet.....	35@40	Mozambique, white ball.....	—

—Mr. William Firth, secretary of the North British Rubber Co., of Edinburgh, Scotland, has been at Waterbury, Conn., visiting William Lawson, whose brother is his assistant. Mr. Firth is a fine-looking old gentleman of commanding presence and courteous address. Before reaching Waterbury he visited the World's Fair at Chicago. He sailed for his home from New York on the *Umbria* a week ago.

Esmeralda, sausage.....	46@48	Madagascar, pinky.....	55@57
Guayaquil, strip.....	33@36	Madagascar, black.....	38@40
Nicaragua, scrap.....	43@45	Borneo.....	26@42
Nicaragua, sheet.....	41@42	Gutta-percha, fine grade.....	1.30
Guatemala, sheet.....	—	Gutta percha, medium.....	1.00
Thimbles.....	37@38	Gutta-percha, hard white.....	85
Tongues.....	33@36	Gutta-percha, lower sorts. nominal.	—

In regard to the financial situation Messrs. Simpson & Beers, brokers in crude India-rubber and commercial paper, New York, advise us as follows :

"About the only thing to say regarding the financial situation for June is that the conditions this month have been largely a counterpart of those prevailing during May, as reported, and that there has been practically no demand for rubber paper, or in fact any commercial paper, the banks not being in a condition to warrant buying."

### THE TRADING IN RUBBER STOCKS.

The quotations which follow represent the daily transactions in Rubber stocks on the New York Stock Exchange for each business day since the last report printed in this journal :

DAI.S.	C.OMMOV.			P. REFERRED.		
	Shares.	High.	Low.	Shares.	High.	Low.
June 12.....	150	42 1/2	42 1/2	10	82	82
June 13.....	—	—	—	195	79	79
June 14.....	200	41	41	—	—	—
June 15.....	453	41	40	100	80	80
June 16.....	13	40	40	—	—	—
June 17.....	200	40 1/4	40 1/4	—	—	—
June 18.....	100	40	40	20	78 1/2	78 1/2
June 19.....	—	—	—	315	80	79 1/2
June 20.....	—	—	—	—	—	—
June 21.....	100	42	42	54	79	79
June 22.....	925	41 1/2	40 1/4	100	79 1/2	79 1/2
June 23.....	1007	40	39 1/2	161	80	78
June 24.....	700	39 1/2	38	410	78	77
June 25.....	300	38	38	150	75	75
June 26.....	200	38	38	279	71 1/2	70
June 27.....	700	37	35	150	74	74
June 28.....	100	34 1/2	34 1/2	120	75	75
June 29.....	—	—	—	75	78	78
June 30.....	—	—	—	50	74	74
July 1.....	—	—	—	54	77	75
July 2.....	—	—	—	—	—	—
July 3.....	100	36	36	—	—	—
July 4.....	—	—	—	—	—	—
July 5.....	—	—	—	—	—	—
July 6.....	—	—	—	—	—	—
July 7.....	—	—	—	—	—	—
July 8.....	—	—	—	—	—	—
July 10.....	—	—	—	14	75	75

### THE RUBBER-GOODS TRADE.

RUBBER goods, in common with everything else, are moving slowly, on account of the prevalent distrust in business

circles. Every one seems to be watching his neighbor, trying to discover how he is affected. The more timid or cautious element view with downright suspicion every order received and are more apt to be pleased if orders are small. It is with such dealers not so much a matter of volume of business as of the solvency of customers. This is the season also when rubber factories close for repairs and stock-taking, and when mill-owners prefer to restrict manufacture on account of the difficulty in the heat of summer in making first-quality goods. The pessimist, however, looks upon this shutting down now as due to a want of sufficient orders to keep the factories running.

In the mechanical-goods line, three-quarter-inch hose has been in good demand for two months past. In mill-supplies the completion of enterprises begun early in the season has kept jobbers busy, but within a few days past this trade has shown signs of slackening. Railroad companies are buying very moderately. Outside of the equipment of cars with air-brakes, which is imperative, orders are very slight, as managers are more solicitous about interest charges and dividends than about renewing equipment ahead of actual requirements. Small tubing is dull. A report that fruit crops will be short limits the trade in jar-rings.

Reports from the clothing trade are conflicting. Manufacturers who supply cloth to rubber-men say that the volume of their transactions is nearly if not quite equal to that of the corresponding month last year. Many manufacturers say that they are sold two or three months ahead, while some who deal in high-priced goods report a scarcity of satisfactory orders. The New York retail trade has been very fair, but Chicago houses are complaining. Stocks are by no means heavy.

Boot-and-shoe men report a fair amount of "details." Retailers are not buying, and it is not expected that they will before fall. Stocks are light, very few goods having been carried over, and as the manufacture is now well concentrated in strong hands, the trade can rest assured that products will not accumulate in such a way as to menace prices. What people in great numbers can afford to pay will be carefully studied, and from that standpoint the economical operation and profitable production will be regulated. The impression seems general that the day of cheap rubbers is past. There is a fair business in tennis-shoes and considerable is doing in yachting-goods.

There is much complaint in the hard-rubber goods trade. Bicycle-tire men are perhaps the worst affected by the dullness in trade; the business is not exactly cut in two, but it is nearly as bad as that.

In all lines the trouble is to get money to carry stocks. At the moment the consumer is very fairly provided with funds, but it is the retailer and the jobber having to provide capital that makes trade dull.

#### QUOTATIONS ON CHEMICALS.

LATE quotations for some of the articles used in the rubber factory are as follows, the prices being net:

Barytes, Foreign .....	per ton	\$22.00@24.00
Barytes, American Fleated .....	per ton	29.00@32.00
Barytes, American No. 1 .....	per ton	16.00@18.00
Barytes, American No. 2 .....	per ton	13.00@15.00
Barytes, American No. 3 .....	per ton	11.00@12.00
Lampblack, Best .....	per lb.	.20 @.35
Lampblack, Common .....	per lb.	.07 @.18
Ultramarine Blue .....	per lb.	.08 @.25
Litharge, Kegs .....	per lb.	.06 1/4 @.07 1/2
Vermilion, English .....	per lb.	.85 @.90
Vermilion, Chinese .....	per lb.	.93 @.95

The market for sulphur is quite dull compared with the time

a few months ago when the product was cornered by the Italian mine-owners. Prices are about \$10 per ton lower.

#### AFRICAN RUBBER—LIVERPOOL.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The market for African rubber during the whole month of June has been uniformly steady, and fluctuations have been within a very small compass. As will be seen from the accompanying statistics, the deliveries have been large. At the close there is a good demand for Accra Oysters, soft Liberian and Old Calabar; while Thimbles, Flake, and Gaboon kinds are neglected. The sales include:

	English price.	Approximate prices laid down in New York.
Soft Liberian .....	1 2/2 @1/3	29@30c.
Soft Liberian (pasty) .....	11 1/2 @1/	23@24c.
Hard Liberian .....	1/4	32c.
Accra, Saltpond and Cape Coast Biscuits, of fair quality .....	1 9/2 @1/10	43@44c.
Accra Biscuits, best quality .....	1/10	44c.
Addah Niggers .....	1/9	42c.
Prime selected Sierra Leone Niggers .....	1 6/2	37c.
Grand Bassam and Assine .....	1/5 @1/7	34@38c.
Prime Gambia Niggers .....	2/2	52c.
Mixed Cameroon .....	1 5/2 @1/6	35@36c.
Large Cameroonian or Batanga Ball .....	1/5	34c.
Best Kongo Ball .....	1/9	42c.
Gaboon Ball (or second Kongo Ball) .....	1 7/2 @1/8	39@40c.
Thimbles .....	1/6 @1/6 1/2	36@37c.
Flake .....	1/2 @1/2 1/2	28@29c.
Lump Flake .....	1 2/3	29c.
Prime Black Manoh Twists .....	2/4	56c.
Old Calabar .....	1 5/4	34 1/2c.
Loanda Niggers .....	2/5 @2/5 1/2	58@59c.
Benguela Niggers c. i. f. New York .....	1 10 1/4 @1/10 1/2	44 1/2@45c.

In London, medium kinds continue unchanged. Supplies are moderate, and with the exception of the finer kinds, such as Colombian Sheet, late rates have been paid. We append a statement of Liverpool rubber statistics for the month.

WM. SYMINGTON & CO.

Liverpool, July 1, 1893.

#### LIVERPOOL RUBBER STATISTICS.

	TONS.
Stock of Pará rubber May 31, 1893 .....	752
Arrivals of Pará rubber during June [per Anselm, Obidense, and Teutonic] .....	271
	1023
Stock of Pará rubber June 30, 1893 .....	621
Deliveries of Pará rubber during June .....	402
	519
As against deliveries during May .....	525
Stock of African rubber May 31, 1893 .....	994
Arrivals of African rubber during June [per Benguela, 90 tons; Loanda, 34 tons; Minho, 23 tons; Palmyra, 14 tons; Locksley Hall, 12; Anselm, 5; British Queen, 8; Teneriffe, 50; Boma, 68; Niger, 24; Cabo Verde, 5; Oil Rivers, 87; Persia, 3; Benin, 46] .....	558
	469
Stock of African rubber June 30, 1893 .....	436
Deliveries of African rubber during June .....	376
As against deliveries during May .....	423
The stock of Pará rubber on June 30 consisted of :	
	Fine. Entrefine. Negroheads. Total.
First hands .....	320 72 88 480
Second hands .....	103 31 7 141
	423 103 95 621

\* The stock of Ceará rubber on June 30 consisted of 721 balets; stock of Peruvian rubber, 67 tons.

## IMPORTS FROM PARA.

THE imports in detail of rubber direct from Pará at the port of New York, since our last report, have been as follows, all quantities being expressed in pounds:

June 11.—By the steamer *Maranhense*, from Pará:

	Fine	Medium	Coarse	Caucho.	Totals.
New York Commercial Co.	77,500	13,400	27,400	....	118,300
Reimers & Meyer	41,500	10,300	25,800	....	77,000
Lawrence Johnson & Co.	24,300	4,300	11,400	....	40,000
W. R. Grace & Co.	18,900	2,800	12,000	....	33,700
Shipton Green	13,900	1,800	7,200	....	22,900
P. Lima	1,100	100	1,400	....	2,600
Total	177,200	32,700	85,200	....	305,100

June 28.—By the steamer *Gregory* from Pará and Manáos:

	Fine	Medium	Coarse	Caucho.	Totals.
New York Commercial Co.	139,100	27,200	55,000	94,000	315,300
Joseph Banigan	115,400	31,500	63,300	....	210,200
Reimers & Meyer	79,100	14,800	35,900	53,300	183,300
Boston Rubber Shoe Co.	22,500	5,700	12,900	62,600	103,700
C. Ahrenfeldt & Son	....	....	28,500	67,100	95,600
W. R. Grace & Co.	4,100	....	33,800	....	37,900

## IMPORTS OF CENTRALS.

BELLOW will be found in detail the imports at New York, during June, 1893, of India-rubber from Mexico, Central America, and South America, other than Pará grades:

JUNE 1.—By the *San Marcos*=Colon: POUNDS.  
A. N. Rotholz ..... 1,800  
G. Amsinck & Co. (Panama) ..... 15,150  
Bock & Co. (Panama) ..... 11,400  
J. M. Ceballos & Co. (Pacific coast) ..... 13,500  
Herzel, Feltman & Co. (Pacific coast) ..... 1,500

Total ..... 43,350

JUNE 7.—By the *Yucatan*=Vera Cruz: C. Vlador ..... 1,500

JUNE 11.—By the *Maranhense*=Maranham: Lawrence, Johnson & Co. ..... 4,600

JUNE 12.—By the *Athos*=Colombian ports: H. S. Forwood (Cartagena) ..... 4,300  
H. S. Forwood (Cartagena) ..... 11,500  
J. Ferro (Cartagena) ..... 1,580  
G. Amsinck & Co. (Savannilla) ..... 1,050

Total ..... 18,400

JUNE 12.—By the *El Callao*=Ciudad Bolívar: Thebaud Brothers ..... 2,100

JUNE 12.—By the *Colombia*=Colon: [Ex *Manair Vogt*=South Pacific ports.]

A. Santoa ..... 2,381  
G. Amsinck & Co. ..... 4,284  
W. R. Grace & Co. ..... 1,895  
Munoz & Esprella ..... 5,100  
C. Roldan & Van Sickel ..... 200  
O. G. Mayer & Co. ..... 1,010

Total ..... 14,870

JUNE 14.—By the *City of Washington*=Tuxpan: J. W. Wilson & Co. ..... 350  
To Order ..... 250

Total ..... 600

JUNE 15.—By the *Alamo*=Colon: A. N. Rotholz ..... 1,475  
G. Amsinck & Co. (Panama) ..... 9,810  
Bock & Co. (Panama) ..... 1,940  
J. Agostini & Co. (Panama) ..... 1,200  
To Order (Guayaquil) ..... 5,745

\*For Liverpool. †For London.

Hirzel, Feltman & Co. (Guayaquil) ..... 1,200

J. M. Ceballos & Co. (Guayaquil) ..... 5,100

Total ..... 26,470

JUNE 16.—By the *Sudamer*=Central America: Eggers & Heinlein (Cape Gracias) ..... 9,400

S. Samper & Co. (Cape Gracias) ..... 12,000

Andros & Co. (Greytown) ..... 1,900

Total ..... 23,300

JUNE 20.—By the *Maskelyne*=Bahia: To Order ..... 15,400

JUNE 21.—By the *Orizaba*=Mexican ports: J. Agostini (Frontera) ..... 275

Maitland, Phelps & Co. (Vera Cruz) ..... 300

Total ..... 575

JUNE 21.—By the *City of Pard*=Colon: Eggers & Heinlein ..... 200

[Ex *Acapulco*=Central America.]

Ellinger Brothers ..... 1,043

[Ex *San Blas*=Central America.]

Munoz & Esprella ..... 1,700

A. P. Strout ..... 641

Hoagley & Co. ..... 2,368

[Ex *Barracanta*=Central America.]

W. Loaiza & Co. ..... 1,055

E. Westerwelt ..... 612

J. Aparcio & Co. ..... 1,800

To Order ..... 2,860

Munoz & Esprella ..... 183

Pomares & Cushman ..... 275

Ellinger Brothers ..... 729

Total ..... 13,316

JUNE 24.—By the *Alvo*=Cartagena: Punderford & Co. ..... 1,750

Pim, Forwood & Co. ..... 7,500

Total ..... 9,250

JUNE 28.—By the *Saratoga*=Mexico: H. Marquardt & Co. (Vera Cruz) ..... 180

Graham, Hinckley & Co. (Vera Cruz) ..... 180

J. W. Wilson & Co. (Tuxpan) ..... 350

Total ..... 650

JUNE 29.—By the *Premier*=Bluefields:

Sears & Co. ..... 700

H. Ebensperger ..... 1,000

A. N. Rotholz ..... 800

Total ..... 2,500

	Fine.	Medium.	Coarse.	Caucho.	Totals.
Shipton Green	10,200	900	4,200	....	15,300
Sears & Co.	1,400	....	13,500	....	14,900
Herbst Brothers	....	....	....	13,100	13,100
G. Amsinck & Co.	3,900	....	4,100	4,100	12,100
Lawrence Johnson & Co.	....	....	6,600	....	6,600
Hagemeier & Brown	1,400	400	1,700	....	3,500
Mendel & Co.	....	....	1,400	....	1,400
Total	377,100	80,500	260,900	294,000	1,012,900

## ARRIVED AT BOSTON.

June 19.—By the schooner *Anna R. Bishop*, from Pará:

Boston Rubber Shoe Co.	274,560	45,479	121,750	7,994	449,782
Joseph Banigan	138,512	20,900	38,720	....	195,132

	Total.	413,072	66,379	160,470	7,994	647,915
June Imports of Pará rubber	....	....	....	....	1,955,915	
May Imports	....	....	....	....	1,367,600	
April Imports	....	....	....	....	3,881,400	
March Imports	....	....	....	....	2,107,600	
February Imports	....	....	....	....	2,924,300	
January Imports	....	....	....	....	3,349,000	
December Imports	....	....	....	....	4,809,600	

JUNE 30.—By the *San Marcos*=Colon:

J. M. Ceballos & Co	5,100	6,500
Joseph Agostini	....	1,300
Piza, Nephews & Co	....	1,200
Bock & Co	....	4,100
Hoagley & Co (Panama)	....	1,050
Total	....	14,050

Total for May	257,481
Total for April	200,383
Total for March	277,459
Total for February	244,826
Total for January	222,308
Total for December	208,196
Total for November	297,100
Total for October	207,716
Total for September	340,758

## BOSTON ARRIVALS.

JUNE 3.—By the <i>Milanes</i> =London: Pounds.	
Reimers & Meyer, East Indian	52,000
George A. Alden & Co., Africans	4,370

JUNE 4.—By the <i>Joseph John</i> =Hamburg:	
Reimers & Meyer, Africans	61,000

JUNE 6.—By the <i>Ottoman</i> =Liverpool:	
Reimers & Meyer, Africans	45,000
George A. Alden & Co., Africans	2,500

JUNE 12.—By the <i>Sagamore</i> =Liverpool:	
Reimers & Meyer, Africans	23,000

JUNE 13.—By the <i>Kehrwieder</i> =Hamburg:	
Reimers & Meyer, Africans	18,000

JUNE 19.—By the <i>Anna R. Bishop</i> =Pará: [See particulars under "Imports from Pará" above]	
Reimers & Meyer, Africans	4,600

JUNE 21.—By the <i>Angloman</i> =Liverpool:	
Reimers & Meyer, Africans	5,000

JUNE 12.—By the <i>Venetian</i> =London:	
Reimers & Meyer, East Indian	5,000

Total Imports for June (exclusive of Pará). 215,470

Total for May ..... 172,664

Total for April ..... 185,500

Total for March ..... 221,400

Total for February ..... 225,513

Total for January ..... 309,640

Total for December ..... 255,120

Total for November ..... 297,100

Total for October ..... 100,650

## NEW ORLEANS.

## MAY.

POUNDS.	VALUE.
From Nicaragua ..... 30,188	\$10,188

SPINNEY, VIRTUE & CO.,

Manufacturers of HARD AND SOFT RUBBER GOODS

FOR MECHANICAL AND ELECTRICAL PURPOSES.

Works at LYNN, MASS., U. S. A.

